Department of Defense

Business Management Modernization Program

Business Enterprise Architecture (BEA)

Overview and Summary Information (AV-1)

Call 0010, Task 2.1.2.1.5.5

BEA March 31, 2005 Update

31 March 2005

Version History

Version	Publication Date	Author	Description of Change
1.0	26 May 2002	Kenneth Bohlin	Initial release
2.0	15 July 2002	John Palmer	Call 0002 release
3.0	5 August 2002	Phil Homan	Per customer comments
4.0	15 August 2002	Tiger Team	Per Tiger Team
4.1	18 August 2002	Tiger Team	Per comments received from Team IBM, the Government, and Mitre
4.1	18 August 2002	Tiger Team	Per comments received from Team IBM, the Government, and Mitre
4.2	22 August 2002	Richard Jackson	Incorporation of new figures, Catherine's comments, and further proofreading
4.3	23 August 2002	Phil Homan, Sherwin Meeker, and Mark Wallace	Simplify the document
4.4	25 August 2002	Homan, Meeker, and Wallace	Additional editing
4.5	26 August 2002	Sandbeck, Homan, and Wallace	Additional editing
4.6	10 August 2002	Homan, Palmer, Darden	Updates to description of Phase I and Phase II deliverables, OV "To Be" Financial Process Areas , and replacement of OV "To Be" Matrix, Addition of Business Driver Areas
4.7	18 October, 2002	Palmer, Darden	Incorporation of Government Comments on Version 4.5 Per FMMP Comment Tracking Master Spreadsheet
4.7.1	30 October 2002	Darden	Updated authorship of Version History
4.8 Draft	12 December 2002	Darden, Gibbs	Incorporate Government comments Add edits to reflect Call 0006 updates to BEA Consolidated PP&E PAT into Logistics PAT

Version	Publication Date	Author	Description of Change
4.8 Final	23 January 2002	Darden, Gibbs	Incorporated Government comments from Draft Updates to reflect OPS/PBF consolidation Added Findings and Lessons Learned Section Added acronym list
4.9 Draft	19 March 2003	Tiger Team	Incorporated government comments Incorporated quality assurance comments Added Findings
4.9 Final	02 April 2003	Tiger Team	Addressed comments
5.0 Draft	30 July 2003	ADM Team	BEA Development Guidelines moved to ADM document Updated BEA product requirements (Appendix B) Added Phase III Columns to Appendix B to reflect ADM development direction Addressed comments from previous update
6.0 Draft	17 November 2003	ADM Team	Restructure of document based on DoDAF guidelines government feedback
6.1 Draft	30 April 2004	ADM Team	Updates to reflect BEA changes since last release
6.2 Draft	30 July 2004	ADM Team	Updates to align with BEA Version 2.2
6.2.1	14 August 2004	ADM Team	Updated to address changes in BEA Version 2.2.1
6.3	15 November 2004	ADM Team	Updated to align with BEA Version 2.3
6.3.1	24 November 2004	ADM Team	Updated Appendix E to reflect all changes made to the EBPM
6.3.2	31 January 2005	ADM Team	Updated to align with *BEA January 31, 2005 Update*
BEA March 31, 2005 Update	31 March 2005	ADM Team	Updated to align with *BEA March 31, 2005 Update*

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Acronym List

Acronym	Definition
A&FP&A	Accounting and Finance Policy and Analysis
A&I	Architecture and Interoperability
ACQ	Acquisition
ADM	Architecture Development Methodology
AIT	Architecture Integration Team
API	Application Program Interface
ASD (NII)/CIO	Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer
AT&L	Acquisition, Technology and Logistics
AV	All Views
AV-1	Overview and Summary Information
AV-2	Integrated Dictionary
BDS	Business Data Synonym
BEA	Business Enterprise Architecture
BEP	Business Enterprise Priorities
BMA	Business Mission Area
BMMP	Business Management Modernization Program
BMSI	Business Modernization Systems Integration
BPM	Business Process Modeling
BPMI	Business Process Management Initiative
BPMN	Business Process Modeling Notation
BPR	Business Process Re-engineering
BRM	Business Reference Model
BSI	Business Systems Integration
C4I	Command, Control, Communications, Computers, and Intelligence
CADM	Core Architecture Data Model

Acronym	Definition
CBM	Core Business Mission
CCB	Configuration Control Board
CFR	Code of Federal Regulations
CHCS II	Composite Health Care System II
CIO	Chief Information Officer
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instructions
CM	Configuration Management
CONOPS	Concept of Operations
CR	Change Request
CV	Conceptual View
DARS	DoD Architecture Repository System
DAS	Defense Acquisition System
DBSMC	Defense Business Systems Management Committee
DCIO	Deputy Chief Information Officer
DCPDS	Defense Civilian Personnel Data System
DE	Data Element
DEAMS	Defense Enterprise Accounting and Management System
DIAP	Defense Information Assurance Program
DIMHRS	Defense Integrated Military Human Resources System
DISR	Defense Information Technology Standards Registry
DITPR	DoD Information Technology Portfolio Data Repository
DOs	Data Objects
DoD	Department of Defense
DoD EA RM	DoD Enterprise Architecture Reference Models
DoDAF	DoD Architecture Framework
DOORS	Dynamic Object Oriented Requirements System

Acronym	Definition
DRM	Data and Information Reference Model
DTS	Defense Travel System
EA	Enterprise Architecture
eBART	BEA Analysis and Reporting Tool (Web-Based)
EBPM	Enterprise Business Process Model
EI/DS	Executive Information/Decision Support
EIE	Enterprise Information Environment
ERD	Entity Relationship Diagram
ESOH	Environmental Safety and Occupational Health
ETP	Enterprise Transition Plan
FAR	Federal Acquisition Regulation
FASAB	Federal Accounting Standards Advisory Board
FCWG	FEA Congruence Working Group
FEA	Federal Enterprise Architecture
FEO	For Exhibit Only
FIPS	Federal Information Processing Standard
FM	Financial Management
FMEA	Financial Management Enterprise Architecture
FMMP	Financial Management Modernization Program
GAAP	Generally Accepted Accounting Principles
GAO	Government Accountability Office
GFEBS	General Funds Enterprise Business System
GFI	Government-Furnished Information
GIG	Global Information Grid
GSA	Government Services Administration
HR	Human Resources
HRM	Human Resources Management

Acronym	Definition
HTML	HyperText Markup Language
I&E	Installations and Environment
IA	Information Assurance
IEs	Information Exchanges
ICOM	Information, Control, Output, and Mechanism
IDEF0	Integrated Definition for Function Modeling
IDEF1X	Integrated Definition for Data Modeling
IEEE	Institute of Electrical and Electronics Engineers
IER	Information Exchange Requirement
IT	Information Technology
IV&V	Independent Verification and Validation
JCIDS	Joint Capabilities Integration and Development System
JFMIP	Joint Financial Management Improvement Program
JTA	Joint Technical Architecture
LOG	Logistics
LV	Logical View
MHS	Military Health System
MS	Microsoft
NCES	Net-Centric Enterprise Services
NDAA	National Defense Authorization Act
NII	Networks and Information Integration
OBT	Office of Business Transformation
OM&S	Operations, Materials and Supplies
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
OV	Operational View
OV-1	High-Level Operational Concept Description

Acronym	Definition
OV-2	Operational Node Connectivity Description
OV-3	Operational Information Exchange Matrix
OV-4	Organizational Relationships Chart
OV-5	Operational Activity Node Tree and Model
OV-6a	Operational Rules Model
OV-6b	Operational State Transition Description
OV-6c	Operational Event/Trace Description
OV-7	Logical Data Model
OV-SV-TV	Operational View, Systems View, Technical Standards View
PAR	Performance and Accountability Report
PDF	Portable Document Format (Adobe Acrobat)
PfM	Portfolio Management
PP&E	Property, Plant, and Equipment
PPBE	Planning, Programming, Budgeting, and Execution
PRM	Performance Reference Model
PSA	Principal Staff Assistant
RBPM	Reference Business Process Model
RDBMS	Relational Database Management System
RFP	Request for Proposal
RPI	Real Property Inventory
SA	System Architect (Popkin)
SCWG	System Compliance Working Group
SDE	System Data Exchange
SFIS	Standard Financial Information Structure
SME	Subject Matter Expert
SPB	Strategic Planning and Budgeting (former domain name, now combined with ACC/FIN in the Financial Management Domain)
SPC	Software Productivity Consortium

Acronym	Definition
SRM	Service Component Reference Model
STANFINS	Standard Financial System
SV	Systems View
SV-1	Systems Interface Description
SV-2	Systems Communications Description
SV-3	Systems-Systems Matrix
SV-4	Systems Functionality Description
SV-5	Operational Activity to Systems Function Traceability Matrix
SV-6	Systems Data Exchange Matrix
SV-7	Systems Performance Parameter Matrix
SV-8	Systems Evolution Description
SV-9	Systems Technology Forecast
SV-10a	Systems Rules Model
SV-10b	Systems State Transition Description
SV-10c	Systems Event - Trace Description
SV-11	Physical Schema
TMIP	Theatre Medical Information Program
TRM	Technical Reference Model
TSO	Transformation Support Office
TV	Technical Standards View
TV-1	Technical Standards Profile
TV-2	Technical Standards Forecast
TxV	Taxonomy View
UAO	Unqualified Audit Opinion
UML	Unified Modeling Language
USC	United States Code
USD (AT&L)	Under Secretary of Defense (Acquisition, Technology and Logistics)

Acronym	Definition
USD (C)/CFO	Under Secretary of Defense (Comptroller)/Chief Financial Officer
USD (P&R)	Under Secretary of Defense (Personnel and Readiness)
USTRANSCOM	United States Transportation Command
XML	eXtensible Markup Language

Executive Summary for the *BEA March 31, 2005 Update*

The Business Enterprise Architecture (BEA) provides a blueprint of the future business operations, processes, systems, data, and technology of the Business Mission Area (BMA) of the Department of Defense (DoD). The BEA will be used to enable DoD management decisions:

- To achieve transformation
- To achieve statutory and regulatory compliance
- To ensure the BMA enterprise's architectural integrity

The BEA will be used by:

- Executive Level Managers: Principal Staff Assistants (PSAs), Service Secretaries, or Agency Heads
- Portfolio Managers: Approval Authorities or Chief Information Officers (CIOs)
- Program Managers: Acquisition Program Managers or System Owners

Managers will use the BEA in addressing the major business processes of DoD:

- Planning, Programming, Budgeting and Execution (PPBE)
- The Joint Capabilities Integration and Development System (JCIDS)
- The Defense Acquisition System (DAS)
- IT Portfolio Management (PfM)

As a result of its work in architecture development and business process mapping, the Business Management Modernization Program (BMMP) has enhanced visibility into existing and planned business operations and systems capabilities across DoD services, agencies and commands. The enterprise level architecture in the *BEA March 31, 2005 Update* provides the foundation for future transformation efforts through a common language and framework to be used as DoD services and agencies develop transformation programs so that their efforts can be consistent with the enterprise plan.

Integrated architectures are a primary tool for enterprise level systems integration, as they facilitate coordination among planning, budgeting, acquisition and program execution roles, they clarify boundaries and interfaces, and they provide a common understanding of requirements throughout the enterprise. The *BEA March 31, 2005 Update* includes the following DoD Architecture Framework (DoDAF) products: AV-1, AV-2, OV-1, OV-2, OV-3, OV-5, OV-6a, OV-6c, OV-7, SV-1, SV-4, SV-5, SV-9, TV-1, and TV-2. It thus meets the criteria for an *integrated architecture*[1] according to the DoD Architecture Framework (DoDAF).

[1] According to DoDAF Version 1, Volume I, Section 1.5, "An integrated architecture as referenced in DoDI 5000.2, DoDI 4630.8, CJCSI 3170.01, and CJCSI 6212.01 consists of AV-1, AV-2, OV-2, OV-3, OV-5, SV-1, and TV-1, at a minimum."

Until now, BEA development has followed an incremental approach. The *BEA March 31, 2005 Update* supports the goals and objectives that were established for *Increment 1* of this plan by establishing what is needed for BMA business processes to be compliant with the requirements, laws, regulations and business rules that govern them. Thus, as a reference, the BEA can be used to help define how policy, processes, data and systems can be aligned within these constraints to support achieving the Increment 1 goals and objectives: UAO, Asset Accountability, and Total Personnel Visibility.

The BEA has been modified for the *BEA March 31, 2005 Update*:

- To provide an integrated set of architecture products at the Enterprise Level of the DoD BMA
- To address BMMP Increment 1 requirements to support Unqualified Audit Opinion (UAO), Asset Accountability, Total Personnel Visibility and to resolve Material Weaknesses at the Enterprise Level
- To address recommendations of both the Government Accountability Office (GAO) and the Independent Verification and Validation (IV&V) Contractor
- To serve as a program baseline for the transition of the DoD BMA to a Federated Enterprise Architecture
- To include a draft "For Exhibit Only" set of Core Business Mission Thread Diagrams derived from the BEA Enterprise Business Process Model (EBPM)

A new governance structure has been established within the DoD BMA to guide transformation efforts so that business operations and systems capabilities will be prioritized based on their alignment with Core Business Missions (CBMs). The CBMs are structured so that their business transformation efforts will focus on end-to-end business capabilities that support warfighting mission requirements while continuously improving financial accountability. The CBMs will represent the enterprise level of a 'Federated Architecture[2]' that addresses business capabilities, operations, systems, data, technical standards, and operating requirements that have DoD-wide scope.

BEA March 31, 2005 Update continued to address comments made by IV&V contractors on BEA Versions 1.0 and 2.0, 2.1, 2.2, 2.3 and the *BEA January 31, 2005 Update*. The consolidation and verification of these comments is an ongoing activity. For Versions 1.0 and 2.0, there are 299 comments that are being tracked to closure. Roughly a third of these were resolved in *BEA Version 2.2*. This update resolves the bulk of the remaining open comments that pertain to the Operational View (OV) products and linkages in these versions. Remaining issues for these and more recent versions will be addressed in the September 2005 release.

[2] "A federated architecture is an approach for enterprise architecture development that is composed of a set of coherent but distinct entity architectures; the architectures of the separate members of the federation [organized at the DoD, BMA, Component, and Program levels]." – *DRAFT High Level Concept of Operations for DoD Business Management Modernization Program Federated Approach to Architecture and Transition Plan, Development and Maintenance, March 2005*

The Enterprise Business Process Model (EBPM), a BEA product, portrays an end-to-end view of BMA business processes. It was developed from the point of view of BMA Domains to depict interfaces between Domains and shared processes. For the *BEA March 31, 2005 Update*, BMA Domain Subject Matter Experts (SMEs) developed simplified views of the EBPM from the perspective of each CBM. These views have been captured in five stand-alone CBM Thread Diagrams and included with the BEA on a "For Exhibit Only" basis. They are provided for illustration only and are not directly linked to the EBPM, to each other, or to any other BEA architecture product.

This document, the *Overview and Summary Information (AV-1)* provides a high-level overview of the DoD BEA. As a DoDAF product, the structure and content of this AV-1 are based on DoDAF guidelines. This document presents:

- The overall purpose, scope, and context of the BEA
- A description of the current version of the BEA

Most information specific to the current version of the BEA may be found in Section 4, Scope: Architecture Views and Products Identification, and in Appendix D, Summary of Changes Made in *BEA March 31, 2005 Update*. The findings and recommendations in Section 6, Findings, provide both cumulative and version-specific content. The remaining sections (1-3, 5, and remaining appendices) will be changed less frequently between versions, but will reflect changes that occur in strategy, program goals, objectives, and the nature of the architecture development environment.

BEA March 31, 2005 Update is available on CD-ROM and can be accessed via the BMSI website, http://www.dod.mil/comptroller/bmmp/pages/index.html. Both the *BEA March 31, 2005 Update* and the *BEA Requirements Baseline* update files can be accessed through a Web-based interface that launches automatically when the CD is inserted into a computer's CD drive. Once users enter through an initial screen, they will have the option to view the BEA or the requirements baseline. Further guidance is provided in the *BEA CD HTML Navigation and Visualization Specification for the BEA March 31, 2005 Update.*

1 Architecture Project Identification

This section identifies the architecture project name, the architect, and the organization developing the architecture. It also includes assumptions and constraints, and identifies the approving authority and the completion date.

1.1 Architecture Name

Business Enterprise Architecture (BEA) March 31, 2005 Update

1.2 Architect

The position of Chief Architect of the BEA is in the Business Modernization Systems Integration (BMSI) Program Office.

1.3 Organizations Developing the Architecture

Development of the BEA is an ongoing effort across the Department of Defense (DoD)[3]. Specific development and associated responsibilities have been assigned to the following organizations:

- **Business Modernization Systems Integration (BMSI) Program Office** [4] – established as the program management office to manage the Business Management Modernization Program (BMMP) under the direction of Acquisition, Technology and Logistics (AT&L), but jointly sponsored by the Under Secretary of Defense (USD) AT&L, USD-Comptroller, USD-P&R, and ASD-NII/CIO. BMSI is responsible for overseeing the development and integration of the BEA. BMSI may be contacted via the BMMP public website, *http://www.dod.mil/comptroller/bmmp/pages/index.html*.
- **DoD Domains**[5] – have been responsible for the content of the BEA:
  - Financial Management (FM)

[3] DoD is sometimes referred to as "the Department" in this document.

[4] According to the *Draft Enterprise Strategy for Federated Governance of Defense Business Transformation, 28 March 2005*, subsequent to this update of the BEA, BMSI will be renamed the Office of Business Transformation (OBT) under a new Transformation Support Office (TSO). An Architecture Group, led by an Assistant Deputy Director, who will also be the Chief Architect, will serve as the BMA advocate and overseer for all aspects of the federated BEA.

[5] The BMA is in the process of transitioning to a new federated governance structure that will replace the Domains and will comprise five Core Business Mission Areas (CBMAs). These will include

- Weapons Systems Lifecycle Management
- Materiel Supply and Service Management
- Human Resources Management
- Real Property and Installation Lifecycle Management
- Financial Management

  - Acquisition (ACQ)
  - Human Resources Management (HRM)
  - Installations and Environment (I&E)
  - Logistics (LOG)
  - Enterprise Information Environment (EIE) Mission Area

- **IBM** – the prime contractor to BMSI for developing the BEA Development includes architecture modeling and support activities.

Software Productivity Consortium (SPC) – provides Independent Verification and Validation (IV&V) support.

1.4 Assumptions and Constraints

The following assumptions, constraints, and limitations were identified for the development of the BEA, the *BEA March 31, 2005 Update*, and for this document.

1.4.1 Assumptions

The reader should make the following assumptions concerning this document and the BEA:

- The authors of this document assume that readers understand the contents of the *DoD Architecture Framework (DoDAF)*. This AV-1 provides information specific to the BEA that makes use of and builds upon concepts that are defined in the DoDAF. Definitions of these concepts are not repeated in this document.
- The BEA has been developed and delivered incrementally. Each increment was planned to meet a specific subset of program objectives. The work required to satisfy the needs of a given increment may span multiple versions of the BEA. Consequently, users of architecture products should not assume that the contents of any given version of the BEA will necessarily reflect the complete scope of the objectives and goals of the program.
- The goals, objectives, and the incremental approach described in this document are expected to change as the BMMP program direction changes.
- There is a high risk that primary stakeholders who need to use BEA March 31, 2005 Update for guiding Information Technology (IT) investments will be asked to use architectural content that they have not participated in developing and have not approved.
- At the time this document is being written, governance changes are in progress to establish Core Business Missions (CBMs) within the Business Mission Area (BMA) that will supplant the current Domain structure. However, the organizations and their relationships to approving authorities do not yet exist. As these changes are not yet

complete, the BEA continues to reference Domains with the understanding that this terminology will not be applicable in the near future.

1.4.2 Constraints

This section lists constraints and limitations on the development of BEA and on the contents of this document.

- Due to the size of the BEA, the architecture is being released iteratively. The constraint on size follows the best practice that products be implemented in successive releases as narrow in scope and brief in duration as possible, each a solution to a specific part of an overall mission problem and delivering a measurable net benefit. An effect of this constraint is that not every iteration will release a completely integrated BEA product set.
- The BEA will adhere to *DoD Architecture Framework (DoDAF) Version 1.0* requirements (Version 1.0, dated 9 February 2004, Volume I, Volume II, and Deskbook), with exceptions as authorized by BMSI. Exceptions include:
  - The OV-6c is called the Enterprise Business Process Model (EBPM) since it was not implemented as an Event-Trace Description.
  - The BEA includes supplemental architectural information beyond what is called for in DoDAF. Those extensions that have general applicability beyond the BEA may provide the basis for consideration as possible expansions to DoDAF and CADM.
- The AV-1 must be organized as recommended in *DoD Architecture Framework (DoDAF) Version 1.0*, *Volume II, Product Descriptions*, with the exception that, in order to present programmatic and contextual information before presenting details of the architecture views and products, the order of Sections 2 and 4 has been reversed. "Context" is the title of Section 2 and "Scope: Architecture Views and Products Identification" is the title of Section 4.

1.5 Approval Authority for the BEA

According to the National Defense Authorization Act (NDAA), the Secretary of Defense, acting through the Defense Business Systems Management Committee (DBSMC), is responsible for reviewing and approving the BEA. The text of Title 10 United States Code (USC), Section 186(c), defining the duties of the DBSMC is included in this document as a footnote to Appendix E, National Defense Authorization Act (NDAA) for FY 2005.

The prior approval authorities for the BEA, the BMMP Executive and Steering Committees, were disestablished as of February 2005. Further details regarding the new governance structure and additional approval authorities that oversee BEA development under the direction of the DBSMC are being established at the time of writing of this document. Current plans provide for the establishment of an architecture group under a new Transformation Support Office (TSO) whose Chief Architect will charter, organize, and manage a BMA Architecture Council,

comprised of Component Designees and Approval Authority[6] representatives to review and approve modifications to the federated BEA. This Council will maintain configuration control of the federated BEA and will be the organizational entity that will manage the DBSMC review and approval process required by the NDAA before IRBs can use the BEA for modernization programs certification.

1.6 Date Completed

The completion date for *BEA March 31, 2005 Update* is March 31, 2005.

1.7 Level of Effort and Projected and Actual Costs to Develop the Architecture

Level of effort and cost information may be requested from the Director of BMSI.

[6] Approval authorities for review and approval of the BEA are distinct from the Approval Authorities mandated by the NDAA, which are responsible for review, approval, and oversight of the planning, design, acquisition, deployment, operation, maintenance, and modernization of defense business systems. The latter include USD(AT&L), USD(C), USD(P&R), and ASD(NII).

2 Context

Current DoD business operations do not support accurate, reliable, timely, and consistent business information. In the current environment, there are many systems of varying capabilities for providing DoD business information. The current environment is further characterized by the following:

- Historically, DoD has had no designated center(s) of responsibility for DoD-wide business processes and systems, and has lacked sufficient security and information assurance for those processes and systems. This situation has limited the coordinated management of business systems that support the end-to-end processing of financial; acquisition; logistics; personnel; and Command, Control, Communications, Computers, and Intelligence (C4I) operational information.

- DoD Components and business areas have each developed individual methodologies, with their own information, processes, systems, and security. This can lead to situations where information is stovepiped, data is difficult to access, the availability and disposition of information is not known, authoritative sources cannot be identified, and systems cannot communicate without building customized interfaces.

- The United States Standard General Ledger has not been implemented consistently across DoD components or business areas, nor has a standard line of accounting been implemented across the DoD. This results in complex barriers to auditing financial transactions. The degraded quality of financially relevant information prevents DoD from achieving a UAO, as reported in the *DoD Performance and Accountability Report*.

- Most of DoD's critical management and feeder systems, and thousands of less critical systems, are neither standardized nor compliant with laws, regulations, and policies.

It has long been recognized that a Department-wide initiative would support broader, more universally applicable and available solutions. The BMMP has initiated development of the BEA to serve as a blueprint to guide and constrain investments in DoD organizations, operations, and systems as they relate to or impact business operations. The BEA will provide the basis for guiding the transformation of DoD business processes and the coordination, planning, development, and implementation of business management systems to comply with Federal mandates and requirements (legislation, directives, policy, and regulations) and producing accurate, reliable, timely, and compliant information for the DoD.

Figure 2–1, Transformation Roadmap, described in the *Enterprise Transition Plan*, shows an iterative process comprising the seven distinct functions of BMMP strategy for business transformation. Each function provides deliverables that are used by other functions in a chain that adds value by enabling the DoD to move closer to successful transformation. The BEA plays a central role in this process as follows:

- Strategy and Planning – Strategy and Planning activities provide all stakeholders with an overview of the mission, vision, and goals of the BMMP and define the intended outcomes and strategy for achieving those outcomes. A crucial part of this step is determining how the BEA will be used to support the business transformation effort.

- Business Capabilities – Business Capabilities are the elements of a framework upon which the DoD business needs are categorized and by which transformation is planned, scheduled, resourced, and measured.

- Architecture – The BEA describes two architectures, the current, "As Is" Architecture and the target, "To Be" Architecture. These architectures provide the roadmap that will enable an agency to transition from its current environment to its target environment.

    - The "As Is" environment reflects current business operations within DoD. At the enterprise level, this is the systems inventory currently maintained in the DoD Information Technology Portfolio Data Repository (DITPR). This information is the reference point for transformation to the target environment.

    - The "To Be" Architecture depicts the target environment for the BMA. It will include all of the business processes, data, roles, systems functions, security attributes, and technical standards that will be implemented.

- Transition Planning – Transition Planning serves as the blueprint for IT and Business Transformation decisions and implementations. The transition planning function develops the plan and framework for moving from the "As Is" to the "To Be" environment, as defined in the BEA, using the strategic, business capability, and architecture information obtained from the previous functions, as described in the *Enterprise Transition Plan*.

- IT Transformation via Portfolio Management (PfM) – The PfM function uses the transition plan and BEA products, such as the Systems Evolution Description (SV-8), to develop a decision-making and reporting framework from which IT decisions are made to acquire, maintain, and retire systems.

- Business Transformation – Business Transformation employs analysis of the current environment, the BEA and the *Transition Plan* to conduct Business Process Reengineering to identify and define more efficient, effective processes, roles, organizations, and policies.

- Implementation – Implementation executes the IT and business transformation decisions.

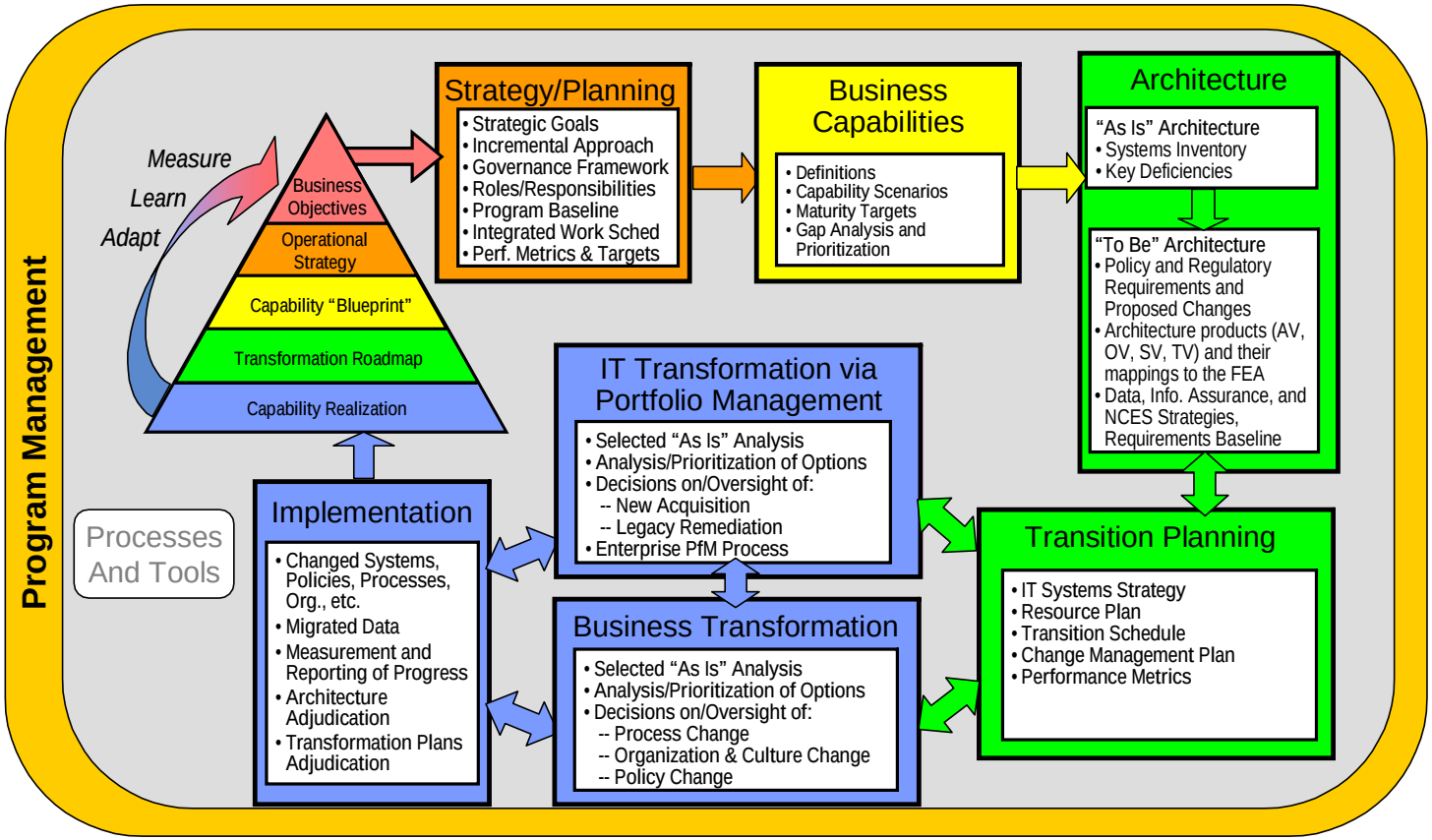

Figure 2–1, Transformation Roadmap

2.1 Mission

The BMMP mission is to support the Warfighter with world-class business operations.

2.2 Vision and Goals

In a memorandum dated 19 July 2001, Secretary of Defense, Donald Rumsfeld, established the DoD Financial Management Modernization Program (FMMP), the predecessor of the current BMMP, and chartered it to develop a DoD-wide Enterprise Architecture (EA) that will guide business transformation by providing a disciplined approach to the integration of business operations and technical solutions. The vision statement for the BEA, from the referenced memorandum is:

> *"The Program Management Office shall develop a DoD-wide blueprint—an Enterprise Architecture that is consistent with the Department of Defense Chief Information Officer's Information Technology architecture—that prescribes how the Department's financial and nonfinancial feeder systems and business processes will interact."*[7]

The same memorandum included the following vision statement for the FMMP:

> *"The Department of Defense will be managed in an efficient, business-like manner in which accurate, reliable, and timely financial information, affirmed by clean audit opinions, is available on a routine basis to support informed decision-making at all levels throughout the Department."*

The following BMMP vision statement, issued subsequent to renaming of the program from FMMP to BMMP in 2003, reflects the expanded focus from using the BEA to assist in financial management modernization to using it in all modernization efforts of business management as the architecture for the entire BMA.

"The BMMP will help DoD to achieve its vision of:

- *Managing its support operations in an efficient, business-like manner, thus optimizing the combat support infrastructure;*
- *Delivering resources to the Warfighter by using the most effective business processes; and*
- *Providing accurate, reliable, and timely financial information, affirmed by unqualified audit opinions, to decision makers at all levels of DoD."*

Table 2–1, BMMP Goals and Objectives, outlines how the BMMP will realize this vision.

[7] Secretary of Defense Donald Rumsfeld, 19 July 2001 memorandum, establishing the FMMP program.

Table 2–1, BMMP Goals and Objectives

Goals		Objectives	
1	Provide timely, accurate, and reliable information for Business Management	1.1	Achieve Unqualified Audit Opinion (UAO) on 2007 consolidated DoD financial statements
		1.2	By 2007, achieve total visibility and accurate valuation[8] of assets to include Operating, Materials and Supplies (OM&S); Inventory; and Property, Plant, and Equipment (PP&E)
		1.3	By 2007, achieve personnel[9] accountability and visibility to include: military service members, civilian employees, military retirees, and other U.S. personnel in a theater of operations (including contractors and other federal employees)
		1.4	Provide DoD decision makers timely access to business information
2	Enable improved Business Operations	2.1	Adopt the BEA for acquiring, managing, and providing materiel and personnel in support of the Warfighter
		2.2	Systematically enable efficiency and productivity improvements to DoD business operations

The BMMP goals of providing timely, accurate, and reliable information for business management and enabling improved business operations will be achieved by meeting the following BEA goals:

- *Enable interoperability throughout the DoD* – The BEA will enable interoperability by providing an initial look at the overall framework of end-to-end business processes within DoD. The development of a common EBPM OV-6c will allow, at the Enterprise Level, a single high-level interpretation of requirements, standard rules, and policies to be embedded into shared operational processes. It will also document transactions and events explicitly with operational information exchanges and by reference to a consistent and unique common data model and dictionary.

- *Achieve operational process excellence* – Opportunities to achieve operational process excellence are identified as business processes are defined and integrated. By means of the EBPM, embedded DoD Net-Centric Enterprise Services (NCES), and links to the Federal Enterprise Architecture (FEA), the BEA will provide the foundation that can be used to identify and eliminate unnecessary duplication, outdated rules and requirements, and to identify potential uses of industry leading practices.

- *Enhance PfM decision-making* – The BEA will establish business, systems, and technical relationships that enhance PfM. In conjunction with a relevant "As Is"

[8] Valuation is the determination or estimation of the value or worth of an asset or inventory of physical assets.

[9] The HRM Domain has broadened the original concept "Total Force Visibility" to "Total Personnel Visibility."

analysis, it can provide an initial basis for a transition plan that will be used to guide the acquisition, development, maintenance, and retirement of systems that achieve capabilities through a transition to target processes.

Thus, the BEA supports BMMP goals and objectives by documenting and guiding the transformation of DoD business processes and systems. Using DoDAF architecture products, the BEA will communicate to all stakeholders, within the Department, the operational relationships, business constraints, systems, and data requirements within the BMA. As it evolves and matures, the BEA will communicate enterprise business strategies, facilitate business process reengineering, guide IT investment decisions, and serve as a technology and data forum to foster cohesive technology and business capability identification across the Department.

The BMMP plan for developing the BEA has allocated the goals and objectives listed in Table 2–1, BMMP Goals and Objectives, to the following three increments[10]:

Increment 1

- Subfocus: Achieve UAO for consolidated DoD financial statements, including related processes to achieve Asset Accountability and address other Material Weaknesses
- Subfocus: Achieve total personnel visibility to include: military service members, civilian employees, military retirees, and other U.S. personnel in a theater of operations (including contractors and other federal employees)

Increment 2

- Subfocus: Align acquisition practices with Government & Industry best practice benchmarks
- Subfocus: Achieve total asset visibility and accurate valuation of assets (includes Operating, Materials and Supplies; Inventory and Property; and Plant and Equipment)
- Subfocus: Enhance force management through position accountability and visibility (military and civilian)
- Subfocus: Improve military healthcare delivery through a more efficient healthcare claims system, more accurate patient diagnostic coding, and joint medical material asset visibility
- Subfocus: Improve environmental safety and occupational health

[10] The explanation of the incremental approach and allocation of goals to Increments 2 and 3 are provided above for consistency with prior releases of the architecture. The overall approach will change following the *BEA March 31, 2005 Update*. At the time of writing of this document, the "incremental" approach is being superseded by an "iterative" approach that will focus future efforts on the identification of business capabilities aligned to CBMs and tied to Warfighter needs. A set of Business Enterprise Priorities (BEP) will drive a new set of program objectives focused on the use of business capabilities in effecting transformation across the Department. Work for the next release, BEA 3.0, scheduled for August 2005, will concentrate on common capabilities for the enterprise level. The effort for subsequent releases will focus increasingly on transformation within the CBMs.

Increment 3

- Subfocus: Implement Planning, Programming, Budgeting and Execution (PPBE) process improvements in accordance with Joint Defense Capabilities Study recommendations for a capabilities-based PPBE process
- Subfocus: Achieve integrated total force management
- Subfocus: Improve installation management

Each increment may comprise multiple releases. The current version, *BEA March 31, 2005 Update*, is an interim release that supports the goals and objectives of Increment 1.

2.3 Rules, Criteria and Conventions Followed

This subsection provides a summary description of contents or applicability of rules, criteria, or conventions to BEA development.

2.3.1 Rules

The following guiding principles from the *Concept of Operations (CONOPS) for DoD Business Enterprise Architecture, Business Process Modeling and Business Process Reengineering, April 2004* provide a set of rules to be applied to meet BEA goals and objectives:

- There is one DoD EA, the Global Information Grid (GIG) architecture. The BEA is the single enterprise architectural representation of DoD business operations within the GIG architecture. The GIG Architecture Integration Panel will continue to serve as the single, unified body for validating the content of the overall GIG architecture.
- The DoD business architecture products shall be DoDAF compliant.[11]
- The DoD business architecture tools shall be *Core Architecture Data Model (CADM)* conformant[12].
- As it evolves under the BMMP governance structure, the BEA shall be the authoritative source documenting requirements and architectural specifications for business architecture compliance across the Department. One of the BEA products is the Integrated Dictionary (AV-2), which is the DoD business enterprise glossary. As process owners[13], Business Domains are the authoritative source for AV-2 terms and definitions pertinent to their business areas. The AV-2 shall be the authoritative source for DoD business architecture terms and definitions; consequently, it shall be a subset of the AV-2 of the GIG architecture.

[11] DoDAF exceptions are noted in the BEA ADM *OV-SV-TV Modeling Guidelines* document, dated 31 March, 2005.

[12] It is anticipated that a tool will be considered CADM conformant if CADM-specified architecture data elements and relationships are preserved when transferred between the tool and DARS, a prototype repository.

[13] The source CONOPS document uses the word “stewards” instead of “owners.” The word was changed here to convey a stronger relationship.

- The BEA shall depict architecture products in sufficient detail to provide an unambiguous interpretation of cross-Domain business transactions.
- The BEA shall include the DoDAF architecture products enumerated in this document and shall provide a DoD-wide enterprise reference model framework. Within the scope of the DoD BMA and as approved through the BMMP governance structure and documented in this document, the BEA EBPM[14] framework shall serve as an integrating structure for Domain Business Process Modeling (BPM) and Business Process Reengineering (BPR) throughout the Department. The BEA EBPM shall link back to the BEA activity and data models and serve as source information for the refinement of these products.
- Proponents of business architecture products across the Department shall use the BMMP configuration control and architecture review processes to recommend potential BEA improvements, such as those that may be realized through process, leading practice, terminology, notation, and other changes.
- Domain business architecture products shall be consistent and compliant with BEA products.
- Component-level architecture products shall be consistent and compliant with BEA and any applicable Domain architecture products.
- The BMSI Program Office shall integrate and maintain the BEA in one integrated repository, using one methodology and one consistent notation (the BMMP Data Repository, the Architecture Development Methodology [ADM], and the set of notations described in the ADM, the DoDAF, and the Popkin System Architecture product). As other architecture products are integrated into the BEA, proponents shall collaborate with BMSI to establish and maintain linkages among BEA DoDAF architecture views (operational, technical, and systems) and shall establish and maintain traceability through their architecture products.

2.3.2 Criteria

Each version of the BEA shall comply with or meet evaluation criteria that are established for that delivery. The evaluation criteria for this version are enumerated in the *Business Enterprise Architecture (BEA) March 31, 2005 Update Evaluation Criteria*, which may be found on the BMMP Portal at *Program Information > General Program Information > Delivery (Contractor) > Evaluation Criteria for Call 0010 Extension > EC for BEA March 31, 2005 Update*.

[14] The CONOPS refers to the BEA's OV-6c business process model as the Reference Business Process Model (RBPM). The business process model has changed substantially because of Domain involvement in BEA and it is now called the EBPM.

2.3.3 Conventions Followed

The conventions, as well as the methodology that must be followed to design, develop, and maintain the architecture is provided in the BEA ADM. All architecture products are developed using *BEA Architecture Development Methodology (ADM)* Version 5.1.

The ADM is organized as a set of guides in three tiers as follows:

Tier 1 consists of the *ADM Overview and Summary*, Version 5.0, 28 January 2005.

Tier 2 includes the following methodology guides:

- *Analyze "As Is" Environment Methodology Guide,* Version 5.1, 31 March 2005 – Provides an approach to describing a current baseline business operating environment whose analysis in comparison with "To Be" architectures drives transition planning.
- *Develop "To Be" Enterprise Architecture (EA) Methodology Guide,* Version 5.0, 28 January 2005 – Provides an approach to defining and developing the future business-operating environment and the supporting system and technological capabilities. It provides guidance for defining a future state of essential business processes that are aligned with business strategy.
- *ADM Integrate and Maintain Enterprise Architecture (EA) Methodology Guide,* Version 5.0, 28 January 2005 – Provides guidance for maintaining the enterprise architecture and managing changes that result from architecture integration, compliance activities, changing regulatory requirements, leading practices, and technological innovations.
- *Develop Transition Plan Methodology Guide,* Version 5.0 Draft, 28 January 2005 – Provides guidance for planning the transition from a current baseline "As Is" business-operating environment to the "To Be" state, and describes the implementation of the BEA in terms of business capabilities.
- *Requirements Management Methodology,* Version 1.2, 28 January 2004 – Describes the role of requirements management with respect to architecture development and provides guidance for defining, updating, maintaining, and refining the requirements baseline, as well as how to properly represent requirements in the architecture.

Tier 3 includes the following documents that provide specific conventions, disciplines, and techniques that are required to develop and maintain the architecture:

- *ADM Operational View (OV)-Systems View (SV) – Technical Standards View (TV) Modeling Guidelines,* v5.1, March 2005 – This document describes BEA-specific conventions for developing the OV, SV, and TV products of the BEA.
- *ADM Business Process Modeling Notation (BPMN) Conventions,* V5.0, 28 January 2005 – This document describes how the Business Process Modeling Notation (BPMN) conventions, established by the Business Process Management Initiative (BPMI), are employed and extended to support development of the EBPM OV-6c.

- *Information Assurance (IA) Guidance Document*, v3.0, 29 March 2005 – This document provides an approach for uniformly and consistently incorporating Information Assurance (IA) into the DoDAF-compliant architecture products of the BEA.
- *BEA Net-Centric Strategy, v4.0*, 29 March 2005 – This document describes BEA data- and services-related net-centric extensions to the GIG framework and how they can be incorporated into the BEA to achieve the needs of the BMA.
- *Transition Planning Development Guideline*, Version 1.1, 28 January 2005 – This document guides the Transition Planning product development process, introduces the transition planning product suite, and articulates the approach for developing the BEA System Evolution Description (SV-8).

The ADM also includes the *ADM Glossary of ADM Terminology*, Version 5.0, 28 January 2005.

In addition, the *EBPM Integration Procedure for the Architecture Integration Team*, a set of procedures complementary and consistent with the ADM, documents how certain architecture products, particularly the EBPM OV-6c, are developed and integrated collaboratively through Architecture Integration Team (AIT) workshops.

2.4 Tasking for Architecture Project and Linkages to Other Architectures

This subsection identifies the sources of the tasking that directed the development and utilization of the BEA.

2.4.1 Tasking for the BEA Project

In July 2001, the Secretary of Defense established the department-wide FMMP under the sponsorship of Under Secretary of Defense (Comptroller) (USD [C]). Since the transformation of the Department's financial management operations includes not only finance and accounting, but also all business activities, in May 2003 the program was renamed the BMMP under the joint sponsorship of the USD (C) and the Assistant Secretary of Defense (Networks and Information Integration) (ASD [NII]). BMMP provides policy, direction, and oversight for all business management modernization efforts.

On 29 October 2004, the President signed into law H.R. 4200, the *Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005*. Congress, through the NDAA, requires that an architecture is defined and used to assess and maintain investments throughout the BMA. The relevant section of the NDAA is excerpted in Appendix E, National Defense Authorization Act (NDAA) for FY 2005.

2.4.2 Linkages to Other Architectures

The BEA is being developed and described based on the DoDAF. It will be integrated or aligned as appropriate with existing government architectures and frameworks to build a federated architecture. The architectures and reference models applicable to the BEA are as follows:

- FEA

- GIG Architecture
- BMA Enterprise and Lower-Level Architectures

Standardization of archiving and exchange mechanisms for architecture data will be addressed by:

- DoD Architecture Repository System (DARS)
- Core Architecture Data Model (CADM)

2.4.2.1 Federal Enterprise Architecture

The FEA is a business-focused framework that provides OMB and Federal agencies with a way to monitor, analyze, and control federal investments in IT. The FEA governs and guides IT investment decisions within agencies, and supports the identification of opportunities to collaborate on, consolidate, and integrate current and planned initiatives by providing a framework for categorization of common functions, information, and services. The FEA consists of five emerging reference models: the *Business Reference Model (BRM), Service Component Reference Model (SRM), Data and Information Reference Model (DRM), Technical Reference Model (TRM),* and the *Performance Reference Model (PRM).* The Office of Management and Budget (OMB) leads the development of the FEA with the support of Government Services Administration (GSA) and the Federal Chief Information Officer (CIO) Council.

2.4.2.2 Global Information Grid

The GIG is the organizing construct for achieving net-centric operations and warfare in the DoD. The GIG is defined as a globally interconnected, end-to-end set of capabilities, associated processes and personnel for collecting, processing, storing, disseminating, and managing information on demand to Warfighters, policy makers, and support personnel.

2.4.2.3 BEA - GIG - FEA Alignment

The GIG is the architecture source for BEA technical guidance and development. It is focused on interoperability and end-to-end integration of automated information systems in support of the Warfighter. In addition, the GIG specifies the communications network and infrastructure, and infrastructure services as NCES on which the BEA will operate. The BEA addresses the business operations of DoD, and therefore is an integral part of the GIG architecture. The BEA adds BMA support aspects to the GIG focus on joint military operations and intelligence support, providing an understanding of those business activities that are vital to the accomplishment of such operations.

In late 2003, the Architecture and Interoperability (A&I) Directorate within the Office of the Deputy Chief Information Officer (DCIO) commissioned a FEA Congruence Working Group (FCWG) to align the GIG architecture with the FEA. This group is composed of representatives from the DCIO, BMMP, the CIO Offices of the Military Services, the Joint Staff, and the Intelligence Community CIO. The FCWG is developing a set of *DoD Enterprise Architecture*

Reference Models (DoD EA RM) (Figure 2–2, DoD Enterprise Architecture Reference Models) that is aligned with the FEA reference models by abstracting key objects from existing architectures, standards, and guidance documents from across the DoD Enterprise Mission Areas: Warfighter, Business, Intelligence, and EIE. The DoD EA RM provides a common, defense-related terminology and set of taxonomies as a basis for comparison among subordinate architectures, for use by commands, services and agencies in developing and analyzing DoD architectures, and for describing DoD systems and programs to support their portfolio management and systems assessment processes. As it is developed, the BEA determines how the DoD EA RM should be aligned with the FEA Reference Models, as applicable. The BEA is used to develop the BMA portion of the DoD EA RM to record how the BEA aligns with the FEA RM. This BMA portion of the DoD EA RM is also used to document BEA alignment with the higher-level GIG architecture. The BEA currently includes links to the DoD EA RM BRM and TRM. The relationship between the BEA and the DoD EA RM is further described in the BMMP deliverable, *Update the Business Mission Area Portion of the Department of Defense Enterprise Architecture Reference Models*.

At this time, BEA Operational Activities have been aligned with the FEA BRM subfunctions, which are loaded into Popkin SA. This allows users to generate reports showing activities associated with FEA BRM lines of business. BEA alignment with the FEA will facilitate COTS selection and deployment. Analysis for items in the BEA not covered by the FEA BRM has been performed. However, the mapping has not yet been analyzed for gaps in the BEA.

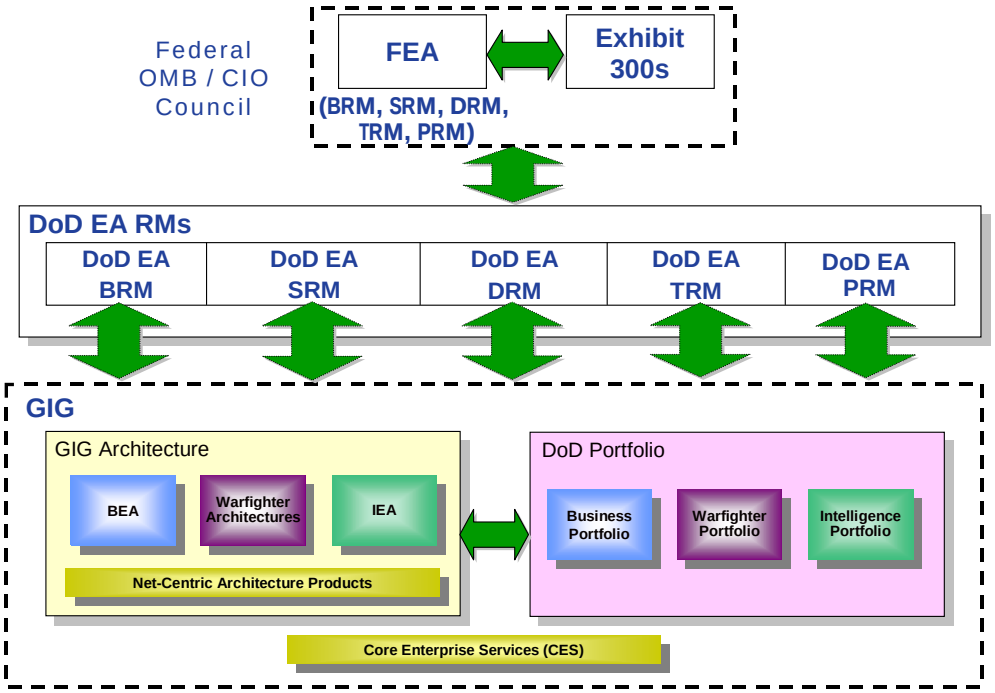

Figure 2–2, DoD Enterprise Architecture Reference Models

2.4.2.4 BMA Enterprise and Lower-Level Architectures

At the time this document is being written, the concept of a "Federated Architecture" is being defined and applied to the BEA. At this time, it is understood that the scope of architecture development activities will include coordination, alignment, and communication among organizations that own pieces of a single "Federated" BEA. This federation will include Enterprise Level CBMs, Component Services, Agencies, and Commands. CBMs will be reflected at the Enterprise Level of the federation. The intent is to provide a federation of independently and semi-independently developed, logically integrated architectures, presentable as a consistent, integrated model.

2.4.2.5 CADM, DARS and BEA

The CADM is the data model that defines the data elements and relationships that constitute a DoDAF architecture. The DARS is a CADM-compliant repository for storing metadata and architecture information for multiple architectures. The CADM data model provides the specification and description of architecture data in the DARS repository in the same way that a data model developed according to Integrated Definition for Data Modeling (IDEF1X) or Entity Relationship Diagram (ERD) specifications provides a nonproprietary specification and description of a relational database. Thus, the value of compliance with the common data model and repository will be realized when dependencies on proprietary metadata, formats, and tools are eliminated and organizations can easily access, reference, and integrate using shared architecture data.

An initial Office of the Assistant Secretary of Defense (ASD/NII) DARS prototype was completed in 2003 using Oracle's Relational Database Management System (RDBMS). This repository was built to the CADM 2.0 standard and its design includes a universal Application Program Interface (API) for exporting and importing architectural information using eXtensible Markup Language (XML) files. A fully implemented CADM architecture repository does not yet exist, nor are there tools available yet that can be used to maintain relationships between architectures stored in DARS. However, Popkin, the vendor of SA, the tool used to implement the BEA, is currently working with NII to develop a DARS-compatible CADM XML interface. Although the interface is not yet available for transferring BEA content to DARS, the Popkin implementation of BEA has been successfully tested with a DARS prototype. In instances such as efforts to capture enterprise-level artifacts from Domain models, where the products to be integrated are produced in disparate tools but in BEA-compatible notation, interfaces will be leveraged on both sides to translate objects to XML and import them into the BEA repository.

The BEA does contain elements and customizations that are not supported by CADM. However, these comprise modifications implemented primarily to provide reporting capabilities. They do not render BEA non-conformant because they are non-conflicting extensions to CADM. In addition, BEA's implementation of OV-6c was implemented using BPMN, which is not currently supported by the CADM. At this point, NII recognizes both IDEF and Unified Modeling Language (UML) for use in DoDAF. The integration of architectures built with other methods is an important issue, since it is a goal of the CADM to provide compatibility among implementation methods.

BMMP has recently conducted a comprehensive comparison of BEA extensions to CADM (implemented in Popkin SA) to CADM with the intent of providing a set of recommendations as input the DoDAF Configuration Control Board (CCB) as a basis for making changes to CADM. Each extension was evaluated as to whether it should or should not be considered, based on its applicability beyond the scope of the BEA. Resulting recommendations include adding data elements that include BPMN, leading practices, material weaknesses and business capabilities, and their relationships to the other DoDAF products.

3 Purpose and Viewpoint

This section first explains the need for the BEA and what it should demonstrate. It then identifies the viewpoint from which the architecture is developed.

3.1 Purpose, Analysis, and Questions to be Answered by Analysis of the Architecture

This section describes the purpose of the BEA, the types of analyses that can be applied to it, what decisions are expected to be made based on analysis, and the expected results.

3.1.1 Purpose

The BEA guides both the transformation of DoD business processes as well as investment decisions. The BEA is an analytical framework that depicts the desired state of the enterprise in terms of its structure and the relationships among its organizations and its systems. By using the BEA in their analyses, business decision makers can develop a transition plan to manage the transformation of business operations from the current business environment to a target environment.

The development of the BEA follows an evolutionary path. Over time, the BEA will become the source for planning, developing, and implementing financial and business management systems that comply with Federal mandates and requirements, and that enable accurate, reliable, timely, and compliant information within the DoD.

3.1.2 Analysis

The subsections that follow outline the types of analysis that are being performed or can be performed using BEA products to support business management and transformation goals.

3.1.2.1 Analysis in Support of Increment 1 Objectives

The approach for *BEA Version 2.0* through *BEA March 31, 2005 Update,* supported by the BMA Domains, has been to focus on the development of the BEA based on the objectives assigned to Increment 1:

1. To achieve UAO for consolidated DoD financial statements, including related processes to achieve Asset Accountability and address other Material Weaknesses
2. To achieve Total Personnel Visibility via system implementations by FY 2007

The BEA supports UAO, improved asset accountability and total personnel visibility by tracking the management of resources for the financial record, the asset record, and the Human Resources (HR) record. It shows how the DoD Business Enterprise-Level capabilities for Financial Accountability, Resource Management, Asset Accountability, and HR Accountability are integrated throughout the life cycle of human resources, contracted services, military equipment, real property, materiel, and any other type of resource that relates to the BMA. The BEA provides the capability to identify and evaluate compliance issues in the BMA by showing how requirements, laws, regulations, constraints and business rules are associated to its business

processes. For example, as the scope of the BEA is developed and expanded at the Component and Program levels, traceability from business transactions can be used to determine the level of Standard Financial Information Structure (SFIS)[15] compliance within BMA systems functions.

3.1.2.1.1 Addressing Material Weaknesses to Support Unqualified Audit Opinion

The BEA is part of OSD's integrated plan to resolve material weaknesses. The DoD Components have developed and submitted financial improvement plans listing deficiencies and necessary corrective actions to accomplish the goal of receiving an UAO. A UAO is an auditor's report expressing the opinion that an organization's financial statements, taken as a whole, are presented fairly in all material respects in conformity with Generally Accepted Accounting Principles (GAAP), consistently applied and without any qualifiers.

This financial improvement initiative has allowed the Department to:

- Better define and align financial statement deficiencies to financial statement lines
- Link deficiencies and corrective actions to business processes
- Provide Department-wide oversight and visibility to improving financial statements

These improvement plans identify material weaknesses that can be corrected through policy revisions, process improvements, or systems changes. In the context of Increment 1, a material weakness is a condition in which the design and operation of financially relevant processes and internal controls do not sufficiently reduce the risk that

- Applicable auditing standards have not been adopted or are not being followed
- Auditing policies and procedures have not been established or are not being followed

The source for material weaknesses is DoD's Performance and Accountability Report (PAR). By mapping the material weaknesses to EBPM processes, links have been created that will allow:

- Identification and analysis of business processes that are relevant to the mitigation of the weaknesses
- Identification and analysis of requirements and business rules (including laws and regulations) to confirm that the relevant weaknesses have been addressed

Note that the architecture cannot mitigate a weakness itself; rather, material weaknesses will be mitigated:

- Through process redesign
- Through the DoD Business Enterprise Architecture

[15] OMB Circular A-127 requires agencies' financial management systems to reflect an agency-wide financial classification structure that is consistent with the US Government Standard General Ledger (USSGL). The Standard Financial Information Structure (SFIS) is the means for categorizing financial information to support financial management and reporting functions.

- Through policy changes
- Through training

The material weaknesses included in the *BEA March 31, 2005 Update* were identified in the PAR and compiled by the FM Domain based on their subject matter expertise. Weaknesses deemed relevant to EBPM processes were aligned and mapped to them. The mappings were then distributed to all Domains for review and the Domain edits were incorporated and finalized. The *BEA March 31, 2005 Update* provides the ability to view EBPM business processes by associated material weakness.

3.1.2.1.2 Asset Accountability

Asset accountability is achieved when the type, location, condition, quantity, financial ledger key, legal interest, and custodian for a physical asset or inventory of assets are known. In the same way that the mapping of requirements and business rules to business processes supports process improvement of financial transactions, the BEA also facilitates the analysis of material weaknesses and process improvement to support asset accountability. For Increment 1, requirements were mapped to the end-to-end Enterprise Level EBPM processes that enable physical accountability, specifically in the following areas:

- Perform Real Property Ingrants/Leases (Operating and Capital)
- Perform Real Property Outgrants
- Conduct Physical Inventory
- Accountability of Materiel and Supplies
- Accountability of Military Equipment.
- Perform New Real Property Construction/ Restoration/ Modernization
- Perform Real Property Purchase

3.1.2.1.3 Total Personnel Visibility

Human Resources Management (HRM) program managers plan force structure and positions, and allocate resources within the boundaries of the DoD budget and plans. Visibility will provide accurate, timely and secure access to information concerning the disposition of all Human Resources. Known deficiencies within current HRM systems include:

- Multiple, disjointed Personnel and Pay Systems lead to inaccurate and late pay for Active, Reserve and Guard Personnel
- Service Members and their families do not have timely access to benefits
- Combatant Commanders cannot account for personnel in theater or effectively select people with needed skills

- Personnel in theater and on temporary duty are not tracked and it is difficult to determine possible exposures to harmful environmental conditions
- Legacy systems put classified information at risk
- Inconsistent processes and data make oversight and management difficult at all levels

The BEA lays the groundwork for achieving Total Personnel Visibility through the implementation of IT systems by FY 2007. This groundwork consists of BEA's clarification of the interactions between the Enterprise Level and the following:

- Management of Travel
- Assignment and Placement
- HRM Sustainment

Other aspects of HRM, such as Pay and Entitlements, are dependent on achieving these aspects of Total Personnel Visibility.

As with UAO and Asset Accountability, Increment 1 focused on identifying requirements related to business processes in the areas of personnel acquisition, development, assignment and sustainment that support the analysis needed to meet the following objectives:

- Provide full accountability of personnel through transfers across Components
- Track personnel in Theater (DoD personnel, foreign military, contractors, other civilians)
- Provide a single, complete record of service to ensure access to authorized users
- Timely and accurate compensation, benefits, and Quality of Life for all personnel and family members
- Tracking of all permanent and temporary duties and assignments, including time in health care facilities

3.1.2.2 General Utility of Architecture Products

BEA products are particularly useful in addressing the independent and inter-dependent major business processes of DoD: PPBE, Joint Capabilities Integration and Development System (JCIDS), Defense Acquisition System (DAS) and IT PfM. The "To Be" BEA provides a set of logical, structured views, which define future DoD business operations, the associated information flows, and the relationships between information flows. BEA will be used in the following ways:

- To enable DoD Management Decisions to Achieve Transformation
- To achieve BMMP Statutory and Regulatory Compliance
- To ensure BMA Architectural Integrity

The *Enterprise Transition Plan (ETP)* provides the guidance and framework necessary for the CBMs, Components, and Programs to implement the BEA. The processes that need to use the BEA and ETP during transformation are explained in the *Enterprise Transition Plan*. Some key uses of the architecture are to:

- Define the IT Portfolio, inform budget analysis, and identify systems to be replaced and integrated to achieve BMMP transformation goals. (Enabling products: DITPR and Business Systems Integration [BSI])
- Guide BEA development and provide strategic planning guidance. (Enabling products: AV-1, AV-2, and High-Level Operational Concept Description [OV-1])
- Standardize process, rules, and data to meet Public Law requirements and BMMP transformation goals by providing guiding products for Business Transformation and the PfM, JCIDS, and Acquisition processes. (Enabling products: Operational Activity Node Tree and Model [OV-5], Operational Rules Model [OV-6a], OV-6c, and OV-7)
- Define high-level system needs and set minimum requirements to achieve BMMP transformation goals by providing guiding products for new system acquisition and system remediation. (Enabling products: Systems Interface Description (SV-1), SV-4, SV-6, OV-3, and OV-7)
- Drive organizational and personnel changes required to achieve BMMP transformation goals by clarifying authority and role definition (Enabling product: OV-5)
- Establish the technical standards for PfM/system assessment, JCIDS, and Acquisition (source selection, interoperability, design, and evolution) to achieve BMMP transformation goals by clarifying technical interoperability foundation (Enabling products: TV-1, TV-2, and Systems Technology Forecast [SV-9])
- Reveal potentially redundant investments and sharing possibilities by using common descriptive terminology; simplify the OMB 300 reporting effort by providing common descriptive terminology (Enabling products: DoD EA RM Business, Service, Data, Performance, and Technical Reference Models)
- Provide data, Information IA, and interoperability requirements for BEA development, PfM, JCIDS, and Acquisition to achieve BMMP transformation goals through a common infrastructure foundation (Enabling products: OV-7, Information Assurance Guidance, and Net-Centric Strategy)
- Establish policy and regulatory foundation for PfM/system assessment, JCIDS, and Acquisition (program definition, source selection requirements, designs, and testing) to achieve BMMP transformation goals by clarifying legal constraints. (Enabling products: Policy and Regulatory Requirements and Proposed Changes)

3.1.3 Questions to be Answered by Analysis of the Architecture

Architecture products help answer pertinent and practical questions at multiple levels of the enterprise, such as these examples:

Executive Level Manager (PSA, Service Secretary, or Agency Head)

- How will a particular business capability be achieved and what programs are needed to implement it?
- What work processes or organizations are affected when a policy change is made? What systems and interfaces are affected?

Portfolio Manager (Approval Authority or CIO)

- How are particular investments prioritized based on requirements to enable a given capability?
- What existing systems provide redundant capabilities? Can they be terminated following an acquisition?
- Where do gaps exist in IT support for business capabilities?

Program Manager (Acquisition PM, or System Owner)

- What functional and technical requirements must be satisfied by the system being acquired?
- What compliance requirements and rules must be considered in the system specification?

3.2 From Whose Viewpoint the Architecture is Developed

An architecture can be developed from varying perspectives. Each perspective influences the level of detail that is specified by the architecture. As an Enterprise Level architecture, the BEA is developed from a planner perspective; focusing on using strategic plans, key enterprise-level processes and information, and the structure of the organization to support streamlining DoD business processes. Initially, at the planner level, the architecture work products provide a high-level overview and a summary of the data, functions, networks, people, time, and motivation (what, how, where, who, when, and why) for a certain area of concern. As BEA work products evolve to meet the ongoing needs of the program, additional detail will be added and additional viewpoints will be addressed.

Expected users of the BEA include the BMA, other DoD Mission Areas, Components, Programs and other organizations that need to acquire and build architectures and systems in support of the objectives of BMMP.

4 Scope: Architecture Views and Products Identification

This section identifies the views and products being developed, the timeframe covered, and the organizations that fall within the scope of the architecture.

In general, the term "BEA" applies to the union of all levels (Enterprise, Component, and Program) of the federated DoD BMA architecture. This document describes the Enterprise Level of the BEA, which includes information maintained by BMSI in Popkin System Architect (SA) views, the requirements maintained in DOORS, all parts of the Transition Plan and any supplemental material in each discipline.

4.1 Views and Products Developed

This subsection describes DoDAF views and products being developed for the Enterprise Level BEA. The *BEA March 31, 2005 Update* includes the AV-1, AV-2, OV-1, OV-2, OV-3, OV-5, OV-6a, OV-6c, OV-7, SV-1, SV-4, SV-5, SV-8 (in ETP), SV-9, TV-1, and TV-2.

The current approach will allow DoD to realize both short- and mid-term benefits by addressing the objectives of Increment 1 while laying the foundation for achieving long-term goals. For Increment 1, work began by developing a high-level process model, the EBPM OV-6c, which depicts the flow of selected business events across DoD.

The work consisted of a review of existing requirements and the identification of material weaknesses that prevent DoD from achieving full asset accountability, total personnel visibility, and UAOs. The reviews were conducted in AIT workshops with representatives from each Domain. During these reviews, selected existing financially relevant requirements were identified and mapped to applicable EBPM OV-6c process steps. In completing this mapping, a checklist of compliance requirements has been compiled for each process step. This checklist lays the foundation for defining and implementing future processes and systems while influencing DoD-wide IT investments. To date, approximately 122,000 requirements have been reviewed, of which approximately 28,000 have been mapped to the BEA. Requirements review will continue as compliance sources are revised, new compliance sources are identified, and EBPM processes are created and modified.

Appendix B, OV and SV Architecture Products and Linkages, contains a diagram depicting relationships between OV and SV products that are important in BEA development.

The *OV-SV-TV Modeling Guidelines* of the ADM provide specific guidance on how BEA products at the Operational, System, and Technical Standards Views are built.

4.1.1 All-Views Products

Some overarching aspects of the architecture relate to all views. These aspects provide the scope and context for the architecture and they will be found in the All Views (AV) products.

The AV-1 is an overview and summary of the architecture and expresses the vision, objectives, scope, and context that should be reflected in the architecture. As such, the AV-1 will be analyzed how vision, objectives, scope, and context are appropriate to drive BEA. The AV-2 defines the terms used in the architecture.

Work performed on All-Views products for *BEA March 31, 2005 Update* is summarized in Table 4–1, All-Views Product Activities.

Table 4–1, All-Views Product Activities

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
AV-1	Overview and Summary Information	Updated to reflect current BEA developments
AV-2	Integrated Dictionary	Updated to include new definitions referenced in this version of the architecture

4.1.2 Operational View Products

The BEA Operational View (OV) provides the DoD with a depiction of the organization-wide business environment and the supporting operational activities. For the "To Be" state, it defines the operational activities, relationships, roles, and information exchange requirements that are needed to optimally perform major DoD end-to-end business processes.

The OV within the BEA describes the "To Be" business environment primarily for activities that will be performed and the information on which those activities will operate. While building the "To Be" architecture, the architecture development team leverages industry and government leading practices, evaluates material weaknesses, examines doctrinal and policy implications, and defines operational requirements. This facilitates interoperability, customer focus, and improved decision making.

The OV specifies the new processes and information that will enhance business operations while supporting Warfighter resource delivery and allocation decisions. Specifically, the OV is the architecture view used to identify the business information, roles, and operations that are most relevant to Warfighter decision making and quick delivery of capabilities.

The *BEA March 31, 2005 Update* includes the Operational Node Connectivity Description (OV-2) and the Operational Information Exchange Matrix (OV-3). The information contained in these products is generated and derived from Operational Activities and Information, Control, Output, and Mechanism (ICOMs) specified in the OV-5. Operational Nodes in the OV-2 are still defined according to the current Domain structure, but future releases will reflect the transformation to the CBM-oriented structure for the BMA. The OV-2 comprises the set of Domain nodes and an Enterprise node that represents cross-Domain connectivity. OV-3 Information Exchanges (IEs) include Domain-approved IA attributes, are linked to the OV-7 Conceptual Data View, to OV-5 ICOMs and to OV-2 Needlines at the leaf-level.

The Organizational Relationships Chart (OV-4) is not included in this version of the BEA, but may be included in future releases. Until now, the program has received consistent direction not to replicate DoD organization charts in the OV-4. Since nodes were defined as roles in earlier releases of the BEA, it was determined that there was limited added value in the OV-4 since it would be sufficient to depict roles as mechanisms in the OV-5 and as swimlanes in the EBPM OV-6c.

The current OV-5 is built on work completed in previous releases where Operational Activities were aligned with EBPM OV-6c processes and ICOMs were aligned with OV-7 Data Entities with a focus on supporting Increment 1 objectives. BEA Operational Activities have been aligned with the FEA BRM subfunctions, which are loaded into SA.

In BEA Versions 2.1 through *BEA March 31, 2005 Update*, the DoD expanded the BEA to include the EBPM OV-6c, which provides a view of end-to-end business processes across the Department. The organizations responsible for developing the BEA agreed to develop the OV-6c using BPMN, since they consider this method of BPM an effective and acceptable[16] technique for creating a view of the operational environment. The development of the BEA EBPM OV-6c is focused on meeting Increment 1 objectives, but it is also useful as a source of requirements and as a reference that can be used to evaluate, extend, and correct the rest of the architecture in areas where it applies. The EBPM OV-6c was developed collaboratively through AITs composed of decision makers and Subject Matter Experts (SMEs) from the DoD Business Domains and BMSI. Material weaknesses, requirements (in the BEA requirements repository) and Operational Rules Model (OV-6a) were expanded to include DoD mandates and were mapped to the EBPM OV-6c processes where they are addressed or apply. The OV-6a provides a useful set of financially oriented business rules for providing the FM Domain with asset valuation data that will help enable a clean audit opinion.

To support future transformation efforts of the five CBMs, BMA Domain SMEs developed simplified views of the EBPM from the perspective of each CBM. These five views have been captured in five stand-alone CBM Thread Diagrams and included in the BEA OV-6c encyclopedia on a "For Exhibit Only" basis. They are provided for illustration only and are not directly linked to the EBPM, to each other, or to any other BEA architecture product.

In addition to the material developed by BMSI, Domains have provided their Data Models for cross-domain integration and subsequent incorporation into the BEA's Logical Data Model (OV-7). These contributions provide the coordinated specification of data entities and relationships that are needed to develop a common, shared information model for all Domains. These results will also serve as guidelines to restructure and update other OV products as development continues in future releases of the BEA. The Logical Data Model now comprises three views: the Conceptual View, the Logical Data Model View, and the Taxonomy View. The Conceptual View is a simplified version of the Logical Data Model, intended to facilitate communications with business users of the architecture. It provides the primary data concepts from the Logical Data Model so that it is easy to discern its scope. For clarity, the Conceptual View only includes the most important data entities and does not include associative entities, subtypes, and data elements/attributes. Links from Information Exchanges to the Logical Data Model are included only for those entities that are included in the Conceptual Model. The Taxonomy view provides linkage to the DoD Data Taxonomy. The Taxonomy View may be used as a reference model that facilitates the analysis required in the placement of new material for stakeholders who wish to add content.

[16] *"The Framework does not endorse a specific event-trace modeling methodology. Two such types of models include UML sequence diagrams [OMG, 2003] and IDEF3 [IDEF3, 1995]. The OV-6c product may be developed using any modeling notation that supports the layout of timing and sequence of activities along with the information exchanges that occur between operational nodes for a given scenario."* – DoDAF Version 1.0, Volume II, Section 4.6.11.

Work performed on OV products for the *BEA March 31, 2005 Update* is summarized in Table 4–2, Operational View Product Activities. See Appendix D, Detailed Summary of Changes Made in *BEA March 31, 2005 Update*, for detailed descriptions of the changes.

Guidelines for development of the BEA EBPM OV-6c can be found in the *ADM Business Process Modeling Notation (BPMN) Conventions*.

Table 4–2, Operational View Product Activities

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
OV-1	High-Level Operational Concept Description	A new figure has been developed for the *BEA March 31, 2005 Update* The OV-1 depicts the new CBM-based organizational structure Descriptive text is provided in HTML
OV-2	Operational Node Connectivity Description	Includes Operational Nodes that represent BMA Domains
OV-3	Operational Information Exchange Matrix	IEs include IA attributes
OV-4	Organizational Relationships Chart	Not in architecture
OV-5	Operational Activity Node Tree and Model	Addressed comments received on prior architecture deliverables Added or deleted ICOMs and modified ICOM and Operational Activity definitions to address issues identified during work on OV-2 and SV-4 diagrams and OV-3 matrix
OV-6a	Operational Rules Model	No changes were made for *BEA March 31, 2005 Update*
OV-6b	Operational State Transition Description	Not in architecture
OV-6c	EBPM (DoDAF Operational Event/Trace Description)	Addressed comments received on prior architecture deliverables Added a new process “Manage Delinquent Debt" The CBM Thread Diagrams added to the encyclopedia for this version of the BEA are provided ***for exhibit only***. They are not a part of the architecture.
OV-7	Logical Data Model	Created BMA Conceptual View linked to OV-5 ICOMs and Information Exchanges.

4.1.3 Systems View Products

BEA Systems View (SV) products describe the set of system capabilities that will provide DoD decision makers with accurate, reliable, and timely access to business operations information required to operate in key DoD enterprise business areas. SV products, particularly the SV-1, SV-4, SV-5, and SV-8 are critical to link system solutions to the optimized operations defined in the operational views and will be key-touch points for the PfM process that will realize DoD business transformation.

For BEA Version 2.2, the SV products were modified, primarily in response to GAO and IV&V contractor input regarding BEA Version 1.0. Modifications to the SV-4 were necessary to remove "stove-piped" systems, integration failures, and inconsistent modeling and diagramming conventions.

For *BEA March 31, 2005 Update*, the SV-4 was updated and integrated with the other BEA products to show a high level functional decomposition of BMA systems, the types of data that are exchanged by these systems, the types of data that the systems exchange with persistent data stores and the types of data that these systems exchange with external systems. The SV-4 provides the basis for the Systems Evolution Description (SV-8), which shows how current ("As Is") systems will migrate to the system entities contained in the "To Be" SV. Both the SV-4 and the SV-8 are key inputs to the Enterprise Transition Plan, PfM, and Investment Review processes. Inter-Domain systems interfaces established in the SV-4 are reflected in the SV-1, whose System Nodes (as the Operational Nodes) represent the BMA Domains. The SV-5 connects the business needs defined in the OV to required system functionality. A forecast of the technology that can support and enable this evolution is contained in the Systems Technology Forecast (SV-9). The Systems-Systems Matrix (SV-3) and System Data Exchange Matrix (SV-6) will be documented and included in future releases.

Work performed on Systems View products for BEA March 31, 2005 Update is summarized in Table 4–3, Systems View Product Activities.

> **NOTE:** The OV-SV Disposition List, a mapping of ICOMs to SDEs that was delivered in earlier versions of the BEA, will not be delivered in the *BEA March 31, 2005 Update*.

Table 4–3, Systems View Product Activities

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
SV-1	Systems Interface Description	Includes interfaces between Domains and BMA systems functions that support Increment 1
SV-2	Systems Communications Description	Not in architecture
SV-3	Systems-Systems Matrix	Not delivered in *BEA March 31, 2005 Update*
SV-4	Systems Functionality Description	Includes BMA systems functions that support operational activities associated with Increment 1

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
SV-5	Operational Activity to Systems Function Traceability Matrix	Provides mapping between BMA Increment 1 operational activities and the systems functions that support them
SV-6	Systems Data Exchange Matrix	Not delivered in *BEA March 31, 2005 Update*
SV-7	Systems Performance Parameter Matrix	Not delivered in *BEA March 31, 2005 Update*
SV-8	Systems Evolution Description	The SV-8 was delivered as part of the *Enterprise Transition Plan, Version 2.3, December 20 2004.* The next delivery dates for the SV-8 are August 2005 and January 2006.
SV-9	Systems Technology Forecast	Aligned with the Core Service Areas in the Federal Enterprise Architecture Technical Reference Model
SV-10a	Systems Rules Model	Not in architecture Not applicable to an Enterprise Architecture
SV-10b	Systems State Transition Description	Not in architecture Not applicable to an Enterprise Architecture
SV-10c	Systems Event- Trace Description	Not in architecture Not applicable to an Enterprise Architecture
SV-11	Physical Schema	Not in architecture Not applicable to an Enterprise Architecture

4.1.4 Technical Standards View Products

BEA Technical Standards View (TV) products contain the set of technology constraints that will drive the manner of system implementation. The TV, tightly coupled with elements from the SV, provides a profile of the technical standards and technical services that govern how hardware and software may be used. A major source of standards is GIG policy and guidance. The TV also includes applicable information from the Defense IT Standards Registry (DISR)[17].

The TV focuses on the new and existing standards that are needed to support the applications and operational environment to be deployed in support of the BMA. The TV will permit the forecasting of future changes to standards and technical services that are needed to support emerging capabilities and processing requirements. The TV will define new application and technology standards that are compatible with existing and future applications.

[17] The Defense IT Standards Registry (DISR) is an online repository for a minimal set of primarily commercial IT standards (formerly captured in the *Joint Technical Architecture (JTA)*, Version 6.0). DISR is used to catalog systems being procured by the DoD, to facilitate the interoperability among systems, to facilitate the integration of new systems into the GIG, *and* to build profiles of standards that programs will use to deliver net-centric capabilities.

Specific TV products are the TV-1 and the Technical Standards Forecast (TV-2). When applied to an information processing system or environment, the TV-1 identifies the technical services and associated standards that may be employed. The TV-1 further organizes the suite of technical services into higher-order technology service areas.

The mapping from TV to SV is by the Technical Service data element in the CADM. The CADM describes the TV-1 data model as a parent-child relationship between "Technology Service Area" and "Technical Service." In addition, the CADM describes a parent-child relationship between "Technical Service" and "Standard." As a result, the appropriate mapping between technical view and systems views has been determined to exist at the technical service level. Specifically, technical services map directly to enterprise services, which are components within the systems view.

The TV-1 and TV-2 are both lists of IT standards needed to provide to provide interoperability and Net-Centric[18] Enterprise Services. The TV-1 lists the standards that are mandated for the management**,** development, and acquisition of new and improved systems throughout the DoD, whereas the TV-2 lists emerging standards that may be implemented, but not used in lieu of a mandated standard. TV-2 and SV-9 are both forecasting documents, but differ with respect to the CADM derived elements that they address. The SV-9 offers forecast information on technologies and services that can be classified as Technical Services. The TV-2, on the other hand, focuses on forecast information for emerging standards: those sub elements that collectively implement a technical service. The documents therefore complement each other. One offers forecast information at the detailed level on specific implementations of technology (TV-2), and the other offers similar information about technology and technical services (SV-9).

The TV-2 provides forecast information for each standard identified within the TV-1. These forecasts, with associated confidence factors, are ordered into near-, mid-, and long-term timeframes. The TV-2 provides information to system designers who require visibility into the evolutionary path of a technology/technology standard and must consider how future changes might impact a design.

For BEA Version 2.2, the TV-1 was updated to reflect changes associated with the replacement of the Joint Technical Architecture (JTA) with the DISR.

Work performed on Technical Standards View products for the *BEA March 31, 2005 Update* is summarized in Table 4–4, Technical Standards View Product Activities.

[18] "Net-Centric Enterprise Services (NCES) will provide Department of Defense (DoD) organizations ubiquitous access to reliable, decision-quality information through a net-based services infrastructure and applications to bridge real-time and near-real-time communities of interest." – *Defense Information Systems Agency (DISA) website fact sheet. http://www.disa.mil/pao/fs/nces3.html*

Table 4–4, Technical Standards View Product Activities

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
TV-1	Technical Standards Profile	Aligned BEA IT Standards with DISR 4-2.0 Filled in all Standards attributes, including Descriptions and References Linked Standards with appropriate BEA Technical Services Aligned Technology Service Areas with Core Service Areas in the FEA TRM 1.1 Some Domains and Services approved mandated and emerging standards changes recommended for inclusion in DISR 4-2.0: Logistics and Human Resources Ongoing mapping of FEA TRM Core Service Areas to BEA Technical Services
TV-2	Technical Standards Forecast	Updated TV-2 Standards from multiple sources Included Short-Term, Mid-Term, Long-term Forecasts for non-DISR TV-2 Standards Update of Non-DISR emerging standards forecasts

4.1.5 Requirements Baseline

Since BEA Version 2.0, the AIT has been associating EBPM transactions, events, and data objects with public law, Federal, and DoD regulations to provide a consistent framework for the analysis of BMA processes to support achieving UAO, Asset Accountability and Valuation, and Total Personnel Visibility, and to address material weaknesses and deficiencies. The BEA requirements repository was established using the DOORS product where these laws and regulations and their relationship to the EBPM have been stored and organized. Updating of this repository with new and changing requirements is an ongoing activity. The number of requirements reviewed and deemed financially relevant has decreased since the previous update because approximately 60% of the requirements in the baseline have been "re-parsed" to ensure that each requirement entry contains a complete requirement statement.

Work performed on the Requirements Baseline for the *BEA March 31, 2005 Update* is summarized in Table 4-5, Requirements Baseline Activities.

Table 4–5, Requirements Baseline Activities

Architecture Product	Architecture Product Name	*BEA March 31, 2005 Update* Developments
Requirements Baseline (not DoDAF)	Requirements Baseline (not DoDAF)	Requirements were reviewed and assigned to EBPM business process steps from the following sources: • USC Title 26 – Internal Revenue Code • USC Title 28 – Judiciary and Judicial Procedure • Code of Federal Regulations (CFR) Title 31 – Money and Finance: Treasury • Public Law 104-134 – Debt Collection Improvement Act of 1996 • Federal Acquisition Regulation (FAR) • Defense Federal Acquisition Regulation Supplement

4.2 Time Frames Addressed

BEA March 31, 2005 Update, is intended to support Increment 1 objectives. Subsequent releases will address objectives and priorities defined by the DBSMC.

4.3 Organizations Involved

The scope of the BEA is DoD business operations, or the BMA. The DoD organizations involved in business operations currently include the five business Domains, the EIE Mission Area, and DoD Components. These organizations are identified as follows:

- Financial Management (FM) Domain – Under Secretary of Defense (Comptroller)/Chief Financial Officer (USD (C)/CFO) – The FM Domain is responsible for developing, instituting, and monitoring standards for financial management processes and systems throughout the Department. In managing these responsibilities, the FM Domain is working with Accounting and Finance Policy and Analysis (A&FP&A), and Deputy Comptroller Program Budget to coordinate development and implementation of standards and policy in support of near-term and long-term goals of the BMMP.

- Acquisition (ACQ) Domain – Under Secretary of Defense (Acquisition, Technology and Logistics) (USD [AT&L]) – The Acquisition enterprise is focused on the efficient and cost-effective delivery of Warfighter capabilities. The goals and objectives of the Acquisition Domain include a number of key business capabilities, which include Program Management and Oversight, Project Management, Procurement and Contract Management, Systems Engineering, Science and Technology, Financial Management, Test and Evaluation, and Manufacturing and Production.

- Human Resources Management (HRM) Domain – Under Secretary of Defense (Personnel and Readiness) (USD (P&R)) – The HRM domain specializes in military

and civilian personnel, military healthcare, safety, occupational health, and defense travel. It is responsible for leading business transformation within the HRM domain, which includes the Military Health Sub-Domain, the Military HRM Sub-Domain, and the Civilian HRM Sub-Domain.

- Installations and Environment (I&E) Domain – USD (AT&L) – The I&E Domain specializes in installation management and environmental liability. This domain is responsible for installation, environment, safety, and occupational health community business transformation through collaborative business process reengineering, data management strategy, IT integration, and change management.

- Logistics (LOG) Domain – USD (AT&L) The Logistics Domain is responsible for Logistics Transformation that includes a DoD logistics enterprise able to cost-effectively support rapid and agile deployment, employment, and sustainment of the total force across the full spectrum of operations.

- Enterprise Information Environment (EIE) Mission Area –The Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer (ASD (NII)/CIO) oversees the EIE Mission Area. The EIE is a mission area that supports the Warfighter, the DoD portion of national intelligence, and business mission areas by providing a common EIE foundation for Net-Centric operations.

- DoD Components – The organizational entities within the DoD, including the Office of the Secretary of Defense (OSD), the Military Departments, the Chairman of the Joint Chiefs of Staff (CJCS), the Combatant Commands, the Office of the Inspector General, the Defense Agencies, and DoD Field Activities.

  NOTE: At the time this document is being written, the Department is reorganizing the architecture framework of the BMA into CBMs. In the future, the Domains will be replaced by the following CBM Owners:

  - Financial Management
  - Materiel Supply and Service Management
  - Human Resources Management
  - Real Property and Installation Lifecycle Management
  - Weapons Systems Lifecycle Management

IRBs are mandated by the NDAA to review and approve all defense business systems. They are chaired by the Under Secretaries of AT&L, Personnel & Readiness, Finance, and the Assistant Secretary of Networks and Information Integration (NII).

The OSD PSAs represent user communities that are responsible for using the BEA to help review the planning, design, acquisition, development, deployment, operation, maintenance, and modernization of defense business systems and to analyze project cost benefits and risks of such systems.

Decision makers and SMEs from the Domains are responsible for the collaborative development of BEA content. They focus on shared capabilities, interoperability, and integration in areas where consistency of business processes and systems can be best achieved.

5 Tools and File Formats Used

The tools (and their file formats) used to develop and manage the BEA are listed in Table 5–1, Development Tools and File Formats.

Table 5–1, Development Tools and File Formats

Development Tools and File Formats				
Tool	**Purpose**	**File Content**	**File Format**	**Additional Formats Used**
Popkin System Architect (Version 10.0)	Used to develop architecture work products HTML, .doc, and .xls can be produced directly from the tool as needed Portable Document Format (PDF) and Microsoft (MS) PowerPoint conversions are performed to meet communication objectives	Architecture artifacts (diagrams and definitions) Reports	Native Popkin SA file extensions Database objects	HTML MS Word (.doc) Adobe Acrobat (.pdf) MS PowerPoint (.ppt) MS Excel (.xls)
MS Word	Word processing software for developing and formatting documents and reports.	Formatted text documents, tables and figures.	Native (.doc)	HTML Rich Text Format (.rtf)
MS Access	Runs reports, export data from/to Popkin SA, and used by some macros	Tables Queries Reports	Native Database Objects	Not applicable
MS Excel	Provides convenient capture of data in a spreadsheet layout	Popkin SA definitions and attributes	Native (.xls)	Not applicable
Merant Version Manager (Version 8.0)	Provides backup and Configuration Management (CM) for work products	Native to creation source	Native to creation source	Not applicable
Merant Tracker (Version 8.0)	Provides structured input and tracking of issues, action items, and Help Desk tickets	Native to creation source	Native to creation source	Not applicable
Dynamic Object Oriented Requirements System (DOORS) (Version 7.0)	Stores the requirements baseline and provide traceability to the architecture	Requirements Reports Exports from Popkin SA Links	HTML Native format of source documents	HTML MS Word (.doc) Adobe Acrobat (.pdf) MS Excel (.xls)

Development Tools and File Formats				
Tool	**Purpose**	**File Content**	**File Format**	**Additional Formats Used**
Microsoft SQL Server 2000 Standard Edition with SP3 (Version 8.0)	Used to develop the web-based BEA Analysis and Reporting Tool (eBART), which checks and generates reports on the consistency of the BEA and adherence to established guidelines	Tables Queries Reports	Native	HTML Adobe Acrobat (.pdf) MS Excel (.xls)

BMMP Configuration Management (CM) centrally manages these tools to ensure efficient usage of resources and common configurations. Users access and use the tools in different ways depending on their functional needs. Many of the tools and databases are accessed using Web browsers. Some of the tools dedicated to architecture development use client-server architecture.

The databases managed by these tools are referred to as the BMMP Data Repository. For additional information on the BMMP Data Repository and its usage, see the *Data Repository Strategy and Implementation Plan (CONOPS)* document (Concept of Operations [CONOPS]).

Specific guidance may be found in the *OV-SV-TV Modeling Guidelines* of the ADM in response to issues identified with architectural support tools. This guideline is a primary source of BEA architecture-specific best practices.

6 Findings

This section describes a cumulative set of BEA architecture related findings and recommendations. Examples of findings include identification of shortfalls, recommended systems implementations, and opportunities for process improvements and technology insertion. This section will be refined and updated as the architecture matures.

6.1 Analysis Results

There are ongoing architecture developments and lessons learned as the BEA effort continues. The findings are categorized as follows:

- Findings and recommendations with overarching enterprise-wide benefits
- Lessons learned related to architecture development

The major purpose of these findings is to leverage industry and federal leading practices and augment them with lessons learned as we develop, extend, and use the architecture.

6.1.1 Enterprise-wide Benefits

This subsection includes findings from analysis and development of the BEA about the overall enterprise.

6.1.1.1 "To Be" Architecture Development

From April 2002 to April 2003, the FMMP Program developed the Financial Management Enterprise Architecture (FMEA). Key deficiencies were addressed through the analysis of high-level processes, systems, and data about to leading practices. In April 2003, the first version of the architecture was delivered on time and under-budget. This delivery was accomplished with limited participation by PSAs and with no formal PSA approval process.

In May 2003, the scope of BEA development was expanded to include the entire BMA. For the first time in the history of the DoD, OSD Domains, services, agencies, and system proponents were working together in a structured manner to develop an architecture to address redundant functionality and gaps of current systems from an enterprise-wide perspective.

So far, this effort has identified the following:

- Dictionary entries (9,846) for DoD-wide common definitions
- Processes steps (95) tied to 11 roles within DoD and aligned into end-to-end business processes related to Increment 1
- Common data structures to ensure useful management information
- Systems that support DoD business transformation and reduce duplication

6.1.1.2 Implementation of Changes to Systems and Processes

Programs implementing two key systems to improve Financial Management Information, UAO and Asset Accountability have used the BEA as a reference:

- The Defense Enterprise Accounting and Management System (DEAMS) for the United States Transportation Command (USTRANSCOM) and the US Air Force – The DEAMS program used specific requirements that had been consolidated in the BEA to capture requirements and business rules. DEAMS also used BEA OV-5 activities to construct a DEAMS baseline activity model, and it used previous BEA OV-6c documents in the creation of the DEAMS OV-6c.
- The General Funds Electronic Business System (GFEBS) for the US Army – GFEBS uses the BEA EBPM OV-6c in mapping its financial architecture and will incorporate Real Property Inventory Logical Data Model.

Six systems in development will provide the capability for Total Personnel Visibility in alignment with the BEA. When implemented, these systems will replace and retire over 120 systems:

- Defense Integrated Military Human Resources System (DIMHRS)
- Defense Civilian Personnel Data System (DCPDS)
- Defense Travel System (DTS)
- Composite Health Care System II (CHCS II)
- Theatre Medical Information Program (TMIP)
- Executive Information/ Decision Support (EI/DS) for the TRICARE Management Agency

Fifty-six (56) systems have been assessed against the BEA for Comptroller certification.

Other Component and Service-related activities and relationships with the BEA include:

- The Army has aligned their business area with the BEA structure.
- The Air Force has performed a comparative analysis of the BEA with its own architecture.
- The Military Health System (MHS) EA SV-5 takes the viewpoint of the BEA SV, providing a linkage between operational activities and system functions across the enterprise. It also references the BEA TV-2 and uses the BEA for certification and funding of its systems and as a driver for PfM issues.

6.1.1.3 Real Property Inventory Data and Process Models

The Real Property Inventory (RPI) process and data models were developed using Industry and Government leading and standard practices to streamline business processes. Results of the

deliberations of the working teams convened by the I&E Domain identified variances between the Federal Accounting Standards Advisory Board's (FASAB's) generally accepted accounting principles and the real property inventory related sections of the DoD Financial Management Regulations. Recommendations were made to resolve the conflict.

As part of the analysis, a logical data model containing the core data elements required to support the management of real property inventory was developed. The core data elements identify the financial, legal, and physical (for example, location) attributes of all real property for the Department. Further, the working teams convened by I&E developed a hierarchical structure of "Location." This structure begins at the real property asset level (land, building, structures, and linear structures) continues to the site level (aggregation of real property assets) and culminates at the installation (management), and includes definitions for each.

The benefit of reaching standard definitions is to ensure that all users of Department-wide information have a shared vocabulary (a goal of NCES). Specifically, they will have a common agreement and understanding of the terms *installation, site, parcel, building, structure,* and *linear structure*. This agreement will allow guidance, policy, instructions, and regulations to be written without having to list, define, or provide examples of these terms and will eliminate the confusion that is prevalent today. Inclusion of the definitions developed as part of the Real Property Inventory BPR into the Logical Data Model provides a means by which the standard definitions may be documented, shared, and disseminated throughout the Department.

In addition to the core data elements, common processes, procedure and data standards have been developed with the Military Services and Defense Agencies that will provide a basis for the accountability, management, and reporting of real property for which the Department has an interest.

The I&E Process Model (Real Property Asset Accountability and Valuation) was developed with particular attention to the EBPM OV-6c structure. Results of this development have enabled clear visibility of I&E Domain processes at the enterprise level, while still satisfying the business needs of the Domain. This development incorporates the interaction between Domains, and thus provides a clear benefit to the Enterprise and to the I&E Domain. Specifically, these results demonstrate that the information associated with the military equipment life cycle is not managed solely by the I&E Domain, but that it is updated from beginning to end (acquisition through disposal) by transactions that are executed by all Domains. This enterprise-wide view enhances asset accountability by showing, in a single model, the specific roles that all the organizations play in the process of managing an asset throughout its life cycle.

The GFEBS is the Army's replacement Core Financial System. GFEBS will replace the Standard Financial System (STANFINS). The GFEBS pilot program will be conducted at Fort Jackson, SC. One of the early efforts of this pilot program is to link Financial Accountability with Physical Accountability, specifically in Real Property. The EBPM OV-6c, which incorporates the interactions with the Financial and Acquisition Domains, will prove useful to this effort.

6.1.1.4 Existing Laws, Policies, and Guidance versus Industry Leading Practices

Before BEA Version 1.0, the FMMP Program developed a *"To Be" Unconstrained Architecture* using industry and government leading and standard practices to streamline business processes. However, some practices were constrained or potentially in conflict with existing laws, policy, and guidance. Compliance White Papers, *Financial Management Enterprise Architecture (FMEA) Additional Compliance White Papers,* were developed to identify potential constraints that could prevent the full implementation of these practices, thereby, reducing their effectiveness or impact on the Department. Proposed changes to Legislation were identified for leading practices, and legislative change proposals were provided to the USD (C) for use in budget deliberations. In addition to legislative changes, recommendations were also made to change the Federal Acquisition Regulation (FAR), the Defense FAR, and the *DoD Financial Management Regulation.* Conversely, research determined that the leading practice for debt collection could be implemented within the constraints of the Debt Collection Improvement Act. The BEA Version 1 "To Be" Constrained Architecture" was then designed assuming these recommendations would be pursued.

Further analysis of laws, policies, and guidance against leading practices has not been performed for Increment 1. However, the work has included the validation of financially relevant regulations and policies by associating them to relevant business processes in the EBPM OV-6c. Necessary law, policy, and guidance changes have been identified through the review of requirements in the AIT process, where work continues to validate financially relevant regulations and policies by associating them to relevant business processes in the EBPM OV-6c. As a result, the FM Domain is pursuing a number of necessary policy changes that have been identified related to the United States Standard General Ledger.

6.1.1.5 Common Processes and Functionality

Identification of systems that support common processes is a part of PfM, the management of IT investments. Through PfM, the relationships between processes and business capabilities are documented, and process and activity models are developed to guide investment in systems that will implement needed capabilities. Once common processes are identified and documented, they can be linked to the systems that implement them in such a way as to permit assessment of impacts of proposed budget decisions.

There are two categories of common processes and procedures:

- Those that define infrastructure and network capabilities
- Operational processes with an emphasis on shared financially-relevant Domain business processes (for example, those that play a role in managing the budget, and financial transactions that involve the general ledger and the chart of accounts)

The latter category is of primary importance to BEA, since its scope is business process improvement. Organizations within the DoD have a high degree of independence, and comprise a number of diverse controlling agencies and components. Analysis of the process model can identify where there is insufficient guidance or lack of control and where independent unaligned decisions are made that may result in inconsistent, duplicative ways of performing financial

transactions and reporting. As part of this analysis, IT systems that deal with these processes can be identified. Identification of these systems is central to providing rigid, well-defined data requirements that describe the types of accounts involved and how they accrue. This analysis is requisite to determining where value can best be gained by reducing costs and eliminating duplicate systems.

Certain functionality is not the responsibility of any specific functional Domain and creates opportunities for NII and BMSI to partner in these areas by piloting and prototyping new capabilities. Since the area of financial and accounting operations have the most cross-Domain impact, they may provide the best opportunities to explore how lower-level applications might support future common services for program planning, budgeting, and execution.

6.1.1.6 System Assessment and Portfolio Management

The system assessment process must be enhanced in order to collect the information needed by Domain program managers and system owners supporting the PfM process. Two approaches were taken to address this area during the development of BEA Version 1.0:

- The relationships between system entities, data stores and data entities were documented in a spreadsheet for identifying data stores by system and for identifying entities by data store.
- Papers were written to address high-level programmatic questions without a detailed architectural comparison.

The value of these results has been limited. Pursuing a more detailed architectural comparison may be of limited value considering the substantial time investment required of system and program managers. The approaches outlined as follows may yield more beneficial results:

- Focus attention on the functionality that is being analyzed in Increments 1, 2, and 3. Determining where the systems that implement this functionality belong in the transition scheme will drive the implementation and acquisition decisions in the fielding of the capabilities supported by these systems. Limit architectural comparisons to the minimum necessary for establishing the systems functionality provided by the assessed system.
- View the system assessment process as an additional point of collection of information that provides additional inputs to the data call. The complete set of information needed to make investment decisions is not currently available. System assessment could supplement the system inventory to include not only the system name and owner, but where the system is in its life cycle; the number of users supported; standards supported; and the availability of future support for legacy systems. In addition, it should answer the following questions: 1) Are the standards implemented in a system the same as those in the DoD plan? 2) What parts of the architecture does the system support? If this information is available when investigating a material weakness, it will not be necessary to look at ICOMs, activities, and other architectural details.

6.1.1.7 Security/IA

The IV&V comments for BEA Version 2.0 suggested that, "*Security/IA (security) representation remains spotty and difficult to find at the enterprise level, and it has some unnecessary deviation from the department's accepted practices, per GAO report (GAO-04-7331R) DoD Business Systems Modernization.*" Conclusions drawn from this report are that IA needs stronger visibility in BEA, IA is not inherent, and IA needs to be explained in detail in order to be considered for each applicable BEA work product. Activities are underway for the improvement of IA visibility in the BEA, including the creation of an IA Meta Model, the development of an *Information Assurance (IA) Guidance Document*, and the identification of IA-relevant.

6.1.1.8 Known Issues, Gaps, and Discrepancies

The following issues were reported and known to exist at the time *BEA March 31, 2005 Update* was released:

1 The System Architect "Second and Third Normal Form Report" may occasionally report nonexistent errors in data models. Popkin expects to have a correction in System Architect Version 10.1, projected for release April 15, 2005.

2 Gaps exist between the OV-5 and EBPM OV-6c in areas not related to Increment 1, such as knowledge management and BMA performance monitoring services. Similarly, the SV-4 diagrams do not include SDEs, data flows or diagrams for non-Increment 1 system functions. These gaps will be resolved in the next release.

3 Overlapping entity definitions exist in the OV-7 between the HRM GEOPHYSICAL-SPACIAL-AREA entity and the recently expanded I&E LOCATION entities. This issue will be resolved at a future date.

4 Commercial pay processes involving payments to vendors should be transferred from the OV-6c FM Record and Manage Payable process box to the Acquisition swimlane to be consistent with Commercial pay best practices. This issue will be resolved at a future date.

5 The requirements baseline is currently stored in the DOORS repository and is not visible in System Architect for query, reporting, and visualization. The requirements will be added to SA at a future date to resolve this issue.

6 Current BEA objects are classified by Domain. The new CBM architectural framework needs to be incorporated into all BEA objects that are currently mapped to a Lead or Steward Domain. The capability to map BEA objects to CBM Owners will be provided in the next release.

7 Material weaknesses having to do with Environmental Liability have yet to be mapped to the EBPM. These mappings will be provided at a future date.

6.1.2 Lessons Learned from Architecture Development for a Very Large Enterprise

The scope and size of the BEA led to several related findings and lessons learned. A majority of the findings center on the absolute need for detailed processes and procedures for architecture development, configuration management, sequencing, and communication. BEA development involves participation of personnel from BMSI, the Domains, IBM, and others from DoD. It was found that the techniques and processes developed for large-scale software development were directly applicable, and, as a result, the project successfully tailored and implemented these processes.

6.1.2.1 Need for Detailed Formalized Processes

Initially, relatively informal processes proved inadequate for controlling and coordinating the efforts of the large workforce. The resolution was to refine, document, and disseminate the processes based on the very similar processes used on large-scale software development projects. This approach has resulted in successful implementation of a configuration control board process, a configuration control process, a defect/enhancement tracking and screening process, an architecture build process, production meetings, detailed product and development guidelines and procedures, kickoff meetings, and access to shared information.

6.1.2.2 Importance of Team Communications

Program personnel need to be located together to facilitate the communication and interaction needed to ensure integration of the architecture. This need can be mitigated by collaboration tools, and to some extent, this was done. However, because of the tight schedule and relatively high level of the EA, nothing could substitute for the appropriate people getting together in a room, and having them “roll up their sleeves” and get the work done. Communications is improved by having dedicated subteam rooms with multiple network connections and a projector, where information can be posted and where there can be informal discussions.

6.1.3 Architectural Tool Support

Given the rapid rate of change and development of the architecture, it is important to be able to solve problems quickly. Full-time, on-site support by the architectural tool vendor has proved essential.

6.1.3.1 Collaborative Development

Information provided by the project’s key stakeholders, such as the Business Domains, is critical. Limited Domain participation due to schedule constraints during the early stages of architecture development, followed by a more recent increase in Domain participation has resulted in significant revisions and a more involved review and approval process than were originally anticipated.

6.1.3.2 Developing and Following Procedures

The development of quality products depends on the development and establishment of repeatable, consistent methodologies, processes, and procedures. This is an evolutionary, iterative process of refinement that requires a commitment to increased capability maturity at all levels and among all stakeholders involved with BEA development.

6.1.3.3 Training

User training for Popkin SA tool provides opportunities for direct, structured exchanges of technical information between the vendor and the users of the product. Knowledge gained in the functions and features of Popkin's environment for Enterprise Architecture development will improve BEA quality and the overall productivity of the program.

6.2 Recommendations

The following findings consist of recommendations that address current issues in the architecture development process and would more closely align the project with DoD needs, goals, and objectives.

6.2.1 Scope of Requirements Analysis

Additional work will be required by the DoD before the BEA can fully support the acquisition of new capabilities, Request for Proposals (RFPs) for system implementation projects, and the resolution of integration issues for new systems. The recommendation is to pursue a more balanced approach to requirements analysis that emphasizes system, data, and security requirements as well as financial requirements.

6.2.2 Balancing and Prioritizing of Objectives

It is recommended that the goals for the September 2005 release of the BEA be prioritized to establish an appropriate balance between objectives, such as the resolution of GAO and IV&V comments on previous work and the need to provide new architectural content sufficient to effectively support the Investment Review Process.

6.2.3 Security/Information Assurance

Because business-operating environments change, threats and vulnerabilities change, and the GIG evolves, Security/IA should be continually adapted to ensure that information is appropriately secured and managed in accordance with laws, policies, directives, generally recognized principles, and best practices. Security/IA policies establish procedures, controls, and guidelines necessary to mitigate threats and vulnerabilities (risks) to the architecture. Therefore, to maximize the effectiveness and cost-efficiency, Security/IA should be embedded into the architecture as early as possible and remain an integral part of the BEA's life cycle development process.

Appendix A – References and Additional Resources

Table A–1, Reference Documents, lists the documents that are referenced in this document or can be used for further background.

Table A–1, Reference Documents

	Referenced Document	Date / Version
1.	*21st Century Transformation Donald Rumsfeld, Secretary of Defense, (transcript of remarks and question and answer period)* http://www.defenselink.mil/speeches/2002/s20020131-secdef.html	31 January 2002
2.	*BEA Architecture Development Methodology* BEA Portal	31 March 2005 Version 5.1
3.	*Enterprise Transition Plan* BEA Portal	20 December 2004 Version 2.3
4.	*BEA Net-Centric Strategy* BEA Portal	28 March 2005 Version 4.0
5.	*BEA Requirements Management Methodology* BEA Portal	29 November 2004 Version 1.2 Draft
6.	*Business Enterprise Architecture (BEA)* http://www.dod.mil/comptroller/bmmp/pages/arch_home.html	*March 31, 2005 Update*
7.	*Business Management Modernization Strategic Plan draft*	October 2003
8.	*Business Process Modeling Notation (BPMN), published by the Business Process Management Initiative (BPMI)* http://bpmi.org/	Working Draft 1.0 August 25, 2003
9.	*Concept of Operations for DoD Business Enterprise Architecture, Business Process Modeling and Business Process Reengineering*	April, 2004
10.	*Core Architecture Data Model (CADM)* http://aitc.aitcnet.org/dodfw/CADM/CADM_2.0_Report_Nov98/	December 1998 / Version 2
11.	*Data Repository Concept of Operations and Implementation Plan* BEA Portal	31 March 2004 Version 2
12.	*Public Law 108-375, the Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005.* http://www.dod.mil/comptroller/bmmp/products/Governance/Public%20Law%20108%20375.pdf	November 2004
13.	*Detailed Action Plan for Developing Transition Planning Products* BEA Portal	22 October 2004 Version 1.0 Final

	Referenced Document	Date / Version
14.	*DoD Architecture Framework (DoDAF)* Version 1.0, http://www.defenselink.mil/nii/doc/	9 February 2004
15.	DoD Directive 5000.1, The Defense Acquisition System http://www.dtic.mil/whs/directives/corres/pdf2/d50001p.pdf	12 May 2003
16.	*DoD Directive 5200.1, "DoD Information Security Program* http://www.dtic.mil/whs/directives/corres/pdf2/d52001p.pdf	December, 1996
17.	*DoD Directive 8500.1, "Information Assurance (IA)* http://www.dtic.mil/whs/directives/corres/pdf2/d85001p.pdf	24 October 2002
18.	*DoD Instruction 8500.2, "Information Assurance (IA) Implementation* http://www.dtic.mil/whs/directives/corres/html/85002.htm	February, 2003
19.	*DoD Manual 8510.1-M, The DITSCAP Application Manual* http://www.dtic.mil/whs/directives/corres/pdf/85101m_0700/p85101m.pdf	July 2000
20.	*EBPM Integration Procedure For the Architecture Integration Team* BEA Portal	1 July 2004 Revision 10.3 Draft
21.	*Federal Information Processing Standard (FIPS) 183, Integrated Definition for Function Modeling (IDEF0)* http://www.itl.nist.gov/fipspubs/idef02.doc	December 1993
22.	*Federal Information Processing Standard (FIPS) 184, Integrated Definition for Data Modeling (IDEF1X)* http://www.itl.nist.gov/fipspubs/idef1x.doc	December 1993
23.	*Financial Management Enterprise Architecture (FMEA) Additional Compliance White Papers, Call 0006, Task 1*	12 March 2003
24.	*GAO Report, DoD Business System Modernization, GAO-04-7331R*	17 May 2004
25.	*Global Information Grid (GIG)* https://disain.disa.mil/ncow.html	Version 2.0 (Draft)
26.	*Information Assurance (IA) Guidance Document* BEA Portal	Version 3.0 29 March 2004
27.	*Net-Centric Operations and Warfare Reference Model* https://disain.disa.mil/ncow.html	July 2003 Version 0.9 Draft
28.	*OMB Circular No. A-11, Section 300, Planning, Budgeting, Acquisition and Management of Capital Assets* http://www.whitehouse.gov/omb/circulars/a11/2002/S300.pdf	17 October 2001

	Referenced Document	Date / Version
29.	*OMB Circular No. A-11, Section 53, Information Technology and E-Government;* http://www.whitehouse.gov/omb/circulars/a11/2002/S53.pdf	17 October 2001
30.	*Performance Reference Model* http://www.feapmo.gov/resources/fea_prm_release_document_rev_1_vol_1.pdf http://www.feapmo.gov/resources/fea_prm_release_document_rev_1_vol_2.pdf	September 2003 Version 1.0
31.	*System View Development Approach and Method* BEA Portal	June 2004 Version 1.0
32.	*OV-5 Development Approach* BEA Portal	October 2004 Version 1.0
33.	*The Business Reference Model* http://www.feapmo.gov/resources/fea_brm_release_document_rev_2.pdf	12 June 2003 Version 2.0
34.	*The Service Component Reference Model* http://www.feapmo.gov/resources/fea_srm_release_document_rev_1.pdf	June 2003 / Version 1.0
35.	*The Technical Reference Model* http://www.feapmo.gov/resources/fea_trm_release_document_rev_1.1.pdf	12 June 2003 Version 1.01
36.	*The Data Reference Model, Volume I* http://www.feapmo.gov/resources/DRM_Volume_1_Version_1_101404_FINAL.pdf	20 October 2004 Version 1.0
37.	*Transition Plan Strategy* BEA Portal	21 October 2002 Version 2.0
38.	*US Code, Title 10, Section 2224, Defense Information Assurance Program (DIAP)*	18 March 2004
39.	*US Code, Title 44, Subchapter II, Information Security*	24 July 2003
40.	*United States Office of Management and Budget Memorandum 97-02,"Funding Information Systems Investments"*	25 October 1996
41.	*DoD Performance and Accountability Report, Fiscal Year 2004.* http://www.dod.mil/comptroller/par/fy2004/00-00_Entire_Document.pdf	15 November 2004
42.	*Update the Business Mission Area Portion of the Department of Defense Enterprise Architecture Reference Models* BEA Portal	17 January 2005 Version 1.0 Draft
43.	*Update Requirements Baseline for BEA 31 March 2005* BEA Portal	31 March 2005 Version 1.0

	Referenced Document	Date / Version
44.	*DoD Business Systems Modernization, Important Progress Made to Develop Business Enterprise Architecture, but Much Work Remains* http://www.gao.gov/new.items/d031018.pdf	September 2003
45.	*BEA CD HTML Navigation and Visualization Specification for the BEA March 31, 2005 Update* BEA Portal	22 March 2004 Version 1.0

Appendix B – OV and SV Architecture Products and Linkages

This appendix describes a target set of linkage relationships among the operational and systems view products for the BEA. Figure B–1, OV and SV Architecture Products and Associated Linkages, does not, and is not intended, to display a comprehensive list and does not prescribe an order in which the architecture should be developed. The DoDAF contains guidelines for choosing products to concentrate on depending on how an architecture will be used. The descriptions in this section are complementary to information provided in the DoDAF and illustrate relationships that have played an important role in the development of the BEA and promise to be most useful as a basis for further activities supporting current and future objectives.

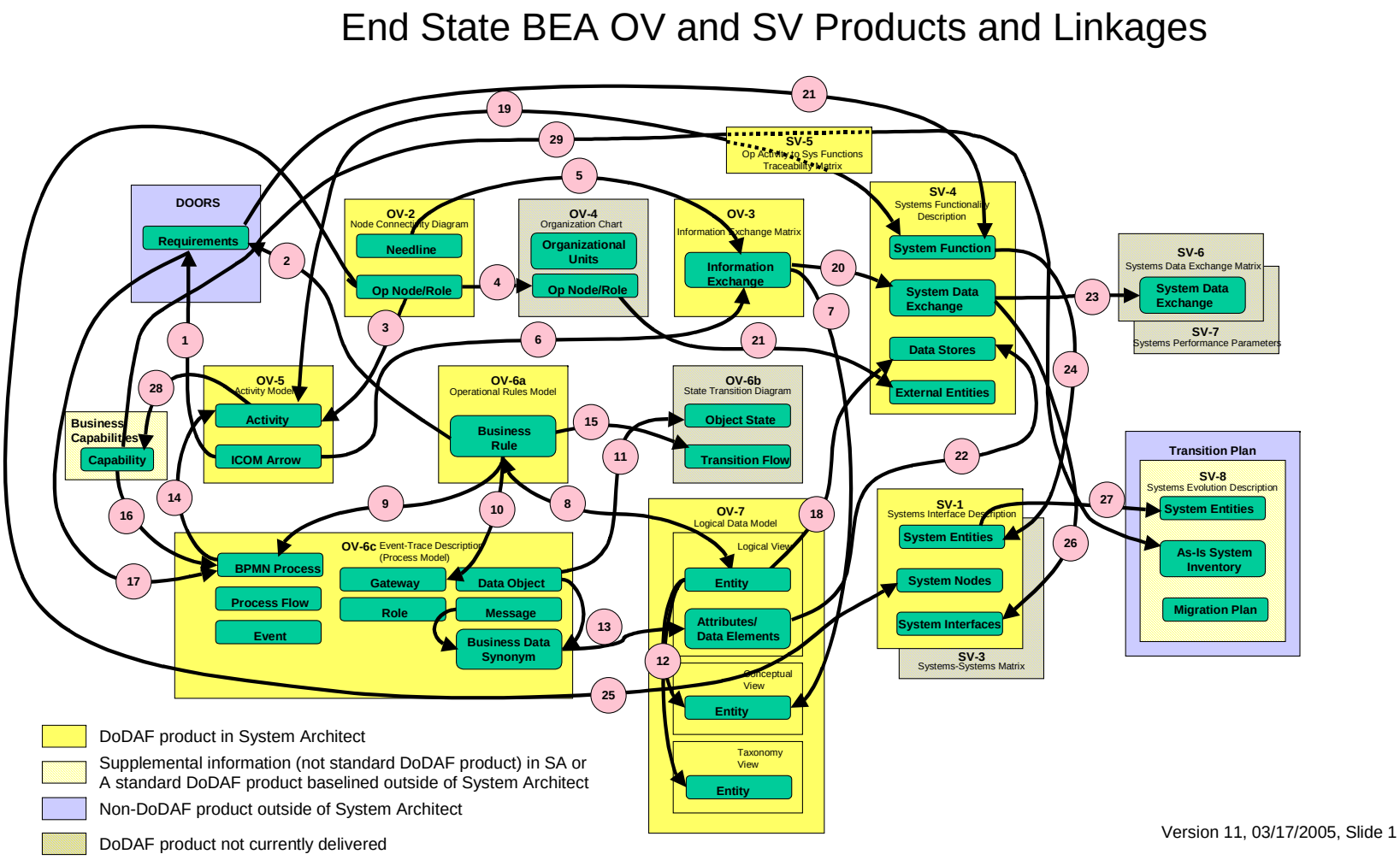

Figure B–1, OV and SV Architecture Products and Associated Linkages

The numbered directional arrows illustrating the linkages in the diagram are meant to show the predominant direction of the analysis that establishes each linkage. However, architecture tools permit reporting of linkages from either direction, and many of the linkages may be analyzed or developed from either direction (particularly when performing maintenance work on the architecture following its initial development). The following list is a key to labeled numbered linkages in the diagram: (There is no significance to the order of numbering of the linkages.)

1. Sources of external compliance requirements in DOORS, such as Joint Financial Improvement Program (JFMIP) requirements, are identified as controls for OV-05 activities
2. Business Rules are included in Popkin SA. Requirements are stored in DOORS.
3. Operational Nodes/Roles have related Operational Activities.
4. Operational Nodes/Roles on the OV-2 are displayed in a hierarchy on the OV-4. (The OV-4 product will not be used to support Increment 1.)
5. Needlines are linked to information exchanges between two Operational Nodes.
6. ICOM Arrows are associated to Information Exchanges of the same name (Not Mechanism ICOMs).
7. Information Exchanges are linked to Entities in the Conceptual View of the Logical Data Model.
8. An Entity may be tied to one or more Business Rules.
9. A Process may be tied to one or more Business Rules.
10. A Gateway may be tied to one or more Business Rules.
11. A Data Object has many States. (Operational State Transition Description [OV-6b] product will not be used to support Increment 1.)
12. The Conceptual View and Taxonomy View have no Attributes and are associated with subsets of Logical View Entities
13. Data Elements are associated to Data Objects and Messages (not currently used) via Business Data Synonyms.
14. BPMN Process links to one or more Activities.
15. Business Rules may link to Transitions.
16. A Business Capability can be linked to Process Steps. Business Capabilities are not a standard Popkin SA definition (that is, DoDAF object), but were created to facilitate architecture scoping and portfolio management.
17. A Requirement may be linked to Process Steps. This linkage is implemented in DOORS.
18. An Entity may be linked to a Data Store.

19 Activities are mapped to System Functions via the SV-5 matrix.

20 One or more Information Exchanges are linked to one or more System Data Exchanges.

21 One or more system requirements are allocated to a System Function.

22 One or more Data Elements (synonymous with Attributes) from one or more Entities may be linked to a Data Store.

23 Characteristics of System Data Exchanges (SDEs) from the SV-4 are shown in the SV-6 matrix.

24 System Functions are analyzed to define, and then are linked to, System Entities.

25 Operational Nodes must be *logically related to* (or alternatively the same as) System Nodes. Operational Nodes are not explicitly linked to System Nodes in the model. At the Enterprise Level, Operational Nodes may represent Domains and the System Nodes might represent regional computing centers.

26 System Data Exchanges are associated with System Interfaces.

27 SV-1 System Entities are used in the SV-8.

28 A Business Capability can be linked to Activities. Business Capabilities are not a standard Popkin SA definition (that is, DoDAF object), but were created to facilitate architecture Scoping and portfolio management.

29 The SV-5 can depict the mapping of capabilities to operational activities, operational activities to system functions, and system functions to systems. Thus it may be used to identify the systems that support a given capability.

Appendix C – Product Descriptions

The following subsections provide additional details about the architecture products developed for *BEA March 31, 2005 Update*.

C.1 AV-1, Overview and Summary Information

This subsection provides a description of the Overview and Summary Information (AV-1) product.

C.1.1 Purpose of Product

The BEA AV-1 presents an overall description of the BEA

C.1.2 Description

The AV-1 provides an executive summary view of the architecture. It discusses the architecture's scope, purpose, intended users, environment, and findings. This product should be read by those want to know what has been learned and how the architecture helps to transform the business operations of the DoD.

C.1.3 Standards Applied:

DoDAF Version 1.0, 9 February 2004

C.2 AV-2, Integrated Dictionary

This subsection provides a description of the Integrated Dictionary (AV-2) product.

C.2.1 Purpose of Product:

The Integrated Dictionary provides a repository of consistent definitions for all terms used in all architecture products. Consistent definitions are key to enforcing and maintaining the semantic integrity of the architecture.

C.2.2 Description

This item is an automatically generated document that lists all the definitions of the terms (objects) contained within the Popkin SA encyclopedia that describes the BEA. The definitions are organized grouped by the OV, SV, and TV and in alphabetical order for easy reference. Problems in the AV-2, such as gaps or redundant definitions, are detected and corrected through the process of architecture integration.

C.2.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.3 OV-1, High-Level Operational Concept Diagram

This section provides a description of the High-Level Operational Concept Description (OV-1) product.

C.3.1 Purpose of Product

The OV-1 acts as a facilitator of human communication, and it is intended for presentation to high-level decision makers. This diagram can also be used as a means of orienting (that is, provide context) and focusing detailed discussions.

C.3.2 Description

The updated OV-1 depicts the current focus of the BEA and its relationship to CBMs. The OV-1 OV-1 was developed by the Acquisition Domain. It is GFI and consists of a graphic slide and accompanying text. The figure reflects CBMs but the text refers to Domains.

C.3.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.4 OV-2, Operational Node Connectivity Description

This section provides a description of the Operational Node Connectivity Description (OV-2) product.

C.4.1 Purpose of Product

The Operational Node Connectivity Description defines Operational Nodes and the Information Exchange Needlines representing information exchanged between the nodes.

C.4.2 Description

The main features of this product are the Operational Nodes and their associated Operational Activities, the Need Lines between them, their associated Information Exchanges, and the Information Assurance characteristics of the information exchanged. Each information exchange is represented by an arrow (indicating the direction of information flow), which is annotated to describe the characteristics of the information exchanged. Information-exchange characteristics are displayed in a matrix format on an OV-3 spreadsheet.

The information illustrated in the Operational Node Connectivity Description can be used to make decisions about which systems are needed to satisfy the business needs of an organization or functional area. However, it is the conduct of business operations that is illustrated, not the supporting systems.

The activities associated with a given information exchange are noted on each node to provide linkages between each node and the activities performed within that node. An Operational Node

Connectivity Description, in effect, "turns the activity model inside out," focusing attention first on the nodes, and second on the Operational Activities.

For *BEA March 31, 2005 Update*, the Operational Nodes in the OV-2 represent an Enterprise Level Node, nodes representing the BMA Domains, and external operational nodes. The Information Exchanges associated with the needlines are leaf-level ICOMs from the OV-5 diagram. The Operational Activities associated to the Domains are from Operational Activities on the OV-5. The OV-2 diagrams include only those ICOMs that are associated to leaf-level Operational Activities that are associated with Increment 1 objectives.

C.4.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.5 OV-3, Operational Information Exchange Matrix

This section provides a description of the Operational Information Exchange Matrix (OV-3) product.

C.5.1 Purpose of Product

The Operational Information Exchange Matrix defines the logical and operational characteristics of the information exchanged between Operational Nodes and the relevant attributes of each exchange.

C.5.2 Description

The Information Exchange Matrix is based on information exchange requirements that are expressed across the three basic data elements of the Operational View: operational activities, operational nodes, and information flow. The focus of the OV-3 is on particular aspects of information flow, including identification of producing and consuming operational nodes and IA attributes, including availability, integrity, confidentiality and classification.

The *BEA March 31, 2005 Update* OV-3 is generated from the Operational Nodes and Information Exchanges identified in the OV-2. The OV-3 includes the following information:

- Needline
- Information Exchange
- Source Node
- Source Activity
- Destination Node
- Destination Activity
- Conceptual Data Entity

- Information Assurance (IA) Attributes (For definitions, see *Information Assurance (IA) Guidance Document, Version 3.0*, 29 March 2005)

C.5.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.6 OV-5, Operational Activity Model

This subsection provides a description of the Operational Activity Model (OV-5) product.

C.6.1 Purpose of Product

The Activity Model defines the Operational business activities of the enterprise. It is typically developed in an iterative manner (with several versions), most commonly an "As Is" and a "To Be" version, to facilitate understanding of an enterprise's existing business and planned changes. As such, it can be used to:

- Clearly delineate lines of responsibility for Operational Activities, when coupled with the OV-2 Operational Node Connectivity Description
- Uncover unnecessary Operational Activity redundancy
- Define or flag issues, opportunities, or Operational Activities and their interactions (information flows among the Activities) that need to be scrutinized further
- Incorporate new Operational Activities (resulting from the iterative, maturing OV-5 diagrams) into the OV-6 product set

C.6.2 Description

The Activity Model describes the applicable Operational Activities associated with the architecture, the information exchanged between activities, and the information exchanged with other activities that are outside the scope of the model (external exchanges). The models are hierarchical in nature; that is, they begin with a single box that represents the overall activity and proceed successively to decompose the activity to the level required by the purpose of the architecture.

The Operational Activity Model captures the Operational Activities performed in a business process or mission and their ICOMs. Mechanisms are the resources that are involved in the performance of an activity. In addition, the Activity Model identifies the mission domain covered in the model and the viewpoint reflected in the model. Activity definitions and business flows are provided in additional text, as needed.

The Activity Model contributes greatly to the definition and appropriate understanding of an operational architecture. While high-level, conceptual architectures with broad scope and diffused focus may not include Operational Activity models, serious consideration should be given to including an activity model in all other architecture efforts.

BEA March 31, 2005 Update includes an Environmental Safety and Occupational Health (ESOH) Operational Activity Model provided by the I&E Domain. This model is distinct from the Enterprise Level OV-5 as it provides only Domain-specific information.

C.6.3 Standards Applied

FIPS-183 (IDEF0) provided standard guidance for the development of the OV-5. Additionally, IBM developed, published, and adhered to a set of quality standards in the *BEA OV-SV-TV Modeling Guidelines*.

> **NOTE:** The *BEA OV-SV-TV Modeling Guidelines* only govern the content of IBM-provided Enterprise-Level content. They do not govern the content of Government-Furnished Information (GFI), such as Operational Activity Models that were supplied by DoD Domains, included in the Popkin SA encyclopedia, but not integrated with the Enterprise Level of the BEA.

C.7 OV-6a, Operational Rules Model (Business Rules)

This section provides a description of the Operational Rules Model (OV-6a) product.

C.7.1 Purpose of Product

The purpose of operational rules model (OV-6a) is to identify the operational constraints related to processes and activities. The objective of business rules in the BEA architecture is to identify operational constraints for the processes at the same "level" as the EBPM process model (OV-6c). Therefore, the end user will only see business rules identified and determined by the Domains to be at the appropriate level of detail.

C.7.2 Description

The OV-6a Business Rules describes the constraints on the operation within the context of a process step, decision gateway, and/or data object. It is a circumstance specific description of what the business can or cannot do given the process or activity. For financially relevant requirements mapped to process steps, the DoD Domains identified major business rule concepts and added them to the OV-6a. The BEA business rules support the goals of the architecture by providing operational constraints that will help achieve a UAO and total personnel visibility. These business rules are not intended be an exhaustive list of rules required to fully meet the goals of the architecture. Other products, such as the compliance requirements, are at a sufficient level of detail to achieve the goals of the architecture.

C.7.3 Standards Applied

Standards applied include the DoDAF and the *BEA OV-SV-TV Modeling Guidelines* document.

C.8 OV-6c, Enterprise Business Process Model

This section provides a description of the Enterprise Business Process Model (OV-6c) product.

C.8.1 Purpose of Product

The EBPM OV-6c provides a process view of the "end-to-end" business life cycle of the DoD. It depicts the usage of DoD resources from planning, sourcing, and execution to return, retirement, termination or disposal. The EBPM OV-6c is an analytical tool used to support both strategic and tactical business planning as well as decision-making by creating the framework to document DoD rules, activities, policies, information, and capabilities related to DoD business operations. It provides the foundation that can be used to identify and eliminate unnecessary duplication, inefficiency, outdated rules and requirements, and to identify potential uses of industry leading practices. Additionally, it provides the blueprint to trace business mission requirements to supporting systems or other initiatives by linking the EBPM with other BEA products.

C.8.2 Description

The EBPM OV-6c is a visual representation of cross-Domain end-to-end processes that allow DoD to realize both short- and mid-term benefits by addressing the objectives of Increment 1, while laying the foundation for achieving long-term goals and supporting business transformation decisions.

The view of the EBPM OV-6c is from the resources life cycle with a focus on the interactions among the Asset Record, HR Profile, and the General Ledger. It was created by Domain Subject Matter Experts (SMEs) in a workshop environment. The EBPM shows how fiscal accountability, asset accountability, and total personnel visibility for DoD BMA resources are achieved and maintained across the life cycle of all resources.

The EBPM OV-6c supports the mandates of receiving a UAO, improved asset accountability and total personnel visibility by making use of mission threads to track the management of resources for the financial record, the asset record and the HR record.

The following process models from the I&E and former Strategic Planning and Budgeting (SPB) Domains have been included in the BEA. They are not yet integrated with the Enterprise Level EBPM:

- Conduct Physical Inventory (I&E)
- Create Initial Asset Record (I&E)
- Environmental Liabilities Recognition Valuation and Reporting Process (I&E)
- Perform Construction/Restoration/Modernization (I&E)
- Perform Real Property Disposal (I&E)
- Perform Real Property Outgrant (Part of Installations & ESOH Stewardship) (I&E)

- Real Property Asset Accountability (I&E)
- Update Real Property Asset Record (I&E)
- Perform Apportionment/Reapportionment (SPB)
- Reprogramming Reports (SPB)
- DD 1414 – Base for Reprogramming Actions (SPB)
- Reprogramming/Realignment (SPB)
- DD 1416 – Report of Programs (SPB)
- Apportionment and Program/Funds Allocation (SPB)
- Continuing Resolution (SPB)
- Rescission (SPB)
- Analyze Program Execution (SPB)
- Adjust Resources (SPB)
- Adjust and Maintain the Current Year Plan (SPB)
- Prior Year Adjustment – Direct (SPB)
- Prior Year Adjustment – Reimbursable (SPB)
- Initiate Requirement (SPB)
- Periodic Review (SPB)
- Pre-Planning (SPB)
- Status of Funds (SPB)

C.8.3 Standards Applied:

Standards applied include the *DoD Architecture Framework (DoDAF)* Version 1.0, the *Business Process Modeling Notation (BPMN),* Working Draft (1.0), 25 August 2003, published by the BPMI, and the *BEA OV-SV-TV Modeling Guidelines.*

> **NOTE:** The *BEA OV-SV-TV Modeling Guidelines* only govern the content IBM-provided Enterprise-Level content. They do not govern the content of Government-Furnished Information (GFI), such as Process Models that were supplied by DoD Domains, included in the Popkin SA encyclopedia, but not integrated with the Enterprise Level of the BEA. They also do not govern the content of the For Exhibit Only (FEO) CBM Thread Diagrams included in the BEA March 31, 2005 Update.

C.9 OV-7, Logical Data Model

This section provides a description of the Logical Data Model (OV-7) product.

C.9.1 Purpose of Product

The BEA Logical Data Model provides an integrated view of the data pertinent to the DoD business Domains. It aims to provide a record of accurate and meaningful business data definitions, and identification of valid, consistent business data structures that contain information to run and manage the business. The BEA Logical Data Model:

- Provides a single-system development base and promotes the integration of existing applications
- Serves as a data reference architecture to support the sharing of data across the DoD Business Domains
- Enables effective management of data resources by providing a single set of consistent data definitions
- Supports the creation and maintenance of enterprise-wide information management

The Logical Data Model encompasses three distinct views to reflect both a high-level overview and the detailed view of the data pertinent to DoD business domains. The BEA Logical View defines the entities attributes and relationships needed for processing of the data by systems functions to support the operational activities. The BEA Conceptual View (CV) is used to define the functional requirements and the business users' view of the architecture to generate a business model. The CV provides an executive view of the data requirements that support the BMMP functionality represented by the OV-5 (Activity Node Tree). The BEA Taxonomy View provides the enterprise overview with navigation to details in the Logical View. Data modeling is performed using the IDEF1X methodology and are developed and maintained in the DoDAF OV-7 portion of the Logical Data Model. The Views are part of the data strategy to establish requirements for implementation of the "publish before use" policies of NCES. At its current level, the model is being used for subjective types of analysis and as a resource for building the BEA itself.

C.9.2 Description

The BEA OV-7 Logical Data Model describes the structure of an architecture's system data types and the structural business process rules (defined in the architecture's Operational View) that govern the system data. It provides a definition of architecture data types or entities, their attributes or characteristics, and their interrelationships. The OV-7 provides a framework for enterprise-wide data integration. The OV-7 comprises three complementary views: the BMA CV, the BMA Logical View (LV), and the BMA Taxonomy View (TxV). These views are contained in separate project data models within SA. Combined, these three views represent the Logical Data Model that supports the entire DoD BMA.

C.9.2.1 The Conceptual View

The Conceptual View provides a description of the key business processes and the data they use in a way that emphasizes business objectives and requirements that is free of implementation technology. The CV is another view of the LV that identifies only principal data entities. CV entities are same as LV entities, but associative entities and attributes are not shown. The CV comprises three levels.

"Level 1" provides a planner's view of the data requirements that support the BMMP functionality as represented in the OV-5 Activity Node Tree. On the diagram "Level 1" is represented as the "DoD-CV-0.0 Conceptual Overview."

"Level 2" is a Business View that maps to the OV-5 by providing a single CV per OV-5 activity. Conceptual View Entities are derived from OV-5 ICOMS, normalized then linked back through IEs to other products. The identifier for each View at this level consists of a single whole number and a zero following the decimal point.

"Level 3" breaks down into independent views for each Conceptual View area. At the lowest level, the CV represents an expansion of the Business Views that includes the fundamental entities required to support related activities. The format of this view is a conceptual ERD) that shows each entity and its relationships. Identifiers for these have non-zero numbers following the decimal point (for example, 1.1 Strategic Planning or 1.5 Requirements Strategy).

C.9.2.2 The Logical View

The BMA Logical View Project Data Model (LV) shows data concepts required to support the activities and processes of the Department of Defense's (DoD's) Business Mission Area (BMA). It also shows the internal structure of that data and the ways that data must relate to other data for the DoD to produce consistent results. The LV is depicted using Entity-Relationship Diagramming (ERD) techniques.

The LV depicts data at rest, also called persistent data. That is, it depicts DoD's fundamental data needs, as well as the business rules (data integrity rules) that apply to the data that DoD stores for later use. The data integrity rules apply to DoD data items while they are stored, not necessarily while the data items are being used.

The LV's level of detail is intended to correspond to the level of the other related OV models, such as the OV-5 Activity Model, and related SV models, such as the SV-4 Data Flow diagrams. As the DoD Enterprise Architecture evolves, the level of the LV will be congruent with the other related OV and SV products.

Portfolio managers can use the LV to help evaluate how well the alternative solutions meet the data needs of the business as expressed in the LV.

> **NOTE:** The concept of a Business Data Synonym (BDS) was introduced into the BEA architecture in the January 31, 2005 Update to reconcile differences between Domain and EBPM metadata naming. The purpose of a BDS is to provide a mechanism for capturing and recording Domain provided terminology during the process of mapping SA Data

Elements to OV-6c Data Objects (DOs). One or more BDSs can be mapped to a single DO. To be properly integrated into the BEA, a DO must contain at least one mapped BDS. Additionally, one or more Data Elements (DEs) can be mapped to each BDS. Again, to be properly integrated into the BEA, a BDS must contain at least one mapped DE. To permit the reuse of a BDS name, a BDS is only meaningful in conjunction with its mapped-to DO name. This means that a BDS name can be reused when it is attached to another DO.

C.9.2.3 The Taxonomy View

An intent of a Taxonomy is to give structure to large volumes of information. The Taxonomy defines a set of functions that are applied at different points in the DoD enterprise. A well-formulated view of information can improve understanding, as well as ease of access to it, thus making the information more useful.

The current Taxonomy under development presents a structure hierarchy. It depicts high-level layers of the categories and common services supported by the DoD. It is an enterprise-wide representation of the data that shows the things that are fundamental to the business. The BEA Taxonomy view ensures that the data within the BMA is discoverable. The TxV is organized as followed:

- A high-level view to present each of the DoD Core Taxonomy[19] abstract areas.
- The high-level view breaks down into independent views for each abstract area. The high level view is the parent and the abstract areas are the children.
- A view for each abstract area will show each class within the area, each subclass within its class and each strong Logical View Entity associated with it.

C.9.3 Standards Applied:

The OV-7 is developed in accordance with the standardized modeling techniques delineated in IEEE 1320.2, and IDEF1X, along with the requirements of the DoDAF document. The IEEE standard specifically grandfathers in all models that follow the FIPS 184 standard. Even though the Popkin SA tool (version 10) supports only the FIPS 184, the OV-7 is nevertheless IEEE compliant.

SV-1, Systems Interface Description

This section provides a description of the Systems Interface Description (SV-1) product.

[19] The DoD Core Taxonomy is an upper level taxonomy that will serve as a linking element for all taxonomies used by DoD components. Development of the DoD Core Taxonomy is the responsibility of the Taxonomy Focus Group, which is a sub-group of the NII Metadata Working Group.

C.9.4 Purpose of Product

The SV-1 shows the Enterprise Level Systems Entities that support the OV-2 Operational Nodes by depicting the System Nodes, the System Entities that reside within the System Nodes, and the System Interfaces among both the System Entities and the System Nodes.

C.9.5 Description

In *BEA March 31, 2005 Update*, the SV-1s, as the OV-2s, are organized at the Enterprise Level by representing the BMA Domains as System Nodes and by assigning each high-level system function to a single System Entity[20]. The highest-level Enterprise Level diagrams depict the grouping of BMA System Entities (system functions) by Domain and identify the interfaces between the BMA Domains and external System Nodes. The Domain-specific diagrams depict the interfaces required to exchange data between System Entities within the BMA. The SDEs that constitute the SV-1 System Interfaces are depicted in the SV-4 and will be further defined in future releases of the BEA in the Systems Data Exchange Matrix (SV-6). System functions are assigned to Domains in parallel with the assignment of the Operational Activities they support to Operational Nodes in the Operational Activity to Systems Function Traceability Matrix (SV-5).

C.9.6 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.10 SV-4, Systems Functionality Description

This section provides a description of the Systems Functionality Description (SV-4) product.

C.10.1 Purpose of Product

The SV-4 shows the following:

- The functional decomposition of systems
- The types of data that are exchanged by systems
- The types of data that systems exchange with persistent data stores
- The types of data that systems exchange with external systems

The "To Be" SV-4 is the basis for the Systems Evolution Description (SV-8). Both the SV-4 and the SV-8 are key inputs to the *Enterprise Transition Plan*, PfM, and the Investment Review process.

[20] *System Entity* is a Popkin SA construct that corresponds to *System* in DoDAF. In fact, this works well for the BEA Enterprise Level, since it focuses on the categorization of high-level systems functionality rather than on individual systems.

C.10.2 Description

The SV-4 diagrams for *BEA March 31, Update* are not hierarchical. They depict only high-level BMA system functions at the Enterprise Level and only one system function per System Entity. The SV-4 diagrams were created only for system functions that support the Increment 1 subfocuses: UAO, AA, and Total Personnel Visibility. Others, such as HRM legal services, are stored in the encyclopedia but are not currently shown on the diagrams. The system functions now in the SV-4 are derived from (a) BEA Version 2.2 SV-4 diagrams, (b) from Domain approved OV-5 operational activities that were aligned to EBPM processes (c) from the updated EBPM and (d) from the "CBM Functions". The "CBM Functions" are a list of system functions provided by the Domain-sponsored System Compliance Working Group (SCWG)[21] as GFI and incorporated into the BEA from DITPR. These system functions are linked to the SV-4 system functions in the *BEA March 31, 2005 Update*.

C.10.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.11 SV-5, Operational Activity to Systems Function Traceability Matrix

This subsection provides a description of the Operational Activity to Systems Function Traceability Matrix (SV-5) product.

C.11.1 Purpose of Product

The SV-5 depicts the mapping of OV-5 Operational Activities to SV-4 Systems Functions. It thus identifies the correspondence between operational needs to the actions performed by the systems that support them.

C.11.2 Description

The SV-5 provides a linkage between the leaf-level OV-5 Operational Activities and SV-4 Systems Functions across the enterprise. The SV-5 is key to understanding how the systems in the enterprise support its business activities.

Analysis using the SV-4 consists of reviewing an Operational Activity definition to validate whether a system is capable of supporting it. The SV-5 provides a means of identifying required Activities that are not supported by systems. It can also be used to link the systems functions in the SV-4 diagrams to business processes they support in the EBPM OV-6c, or to assist in evaluation of System Data Exchange relationships to the OV-5 Activity Model ICOMs and Information Exchange Requirements.

[21] In October 2004, when the NII-led Technical Solutions Integrated Product Team (IPT) was beginning the second population increment of the DITPR, SCWG representatives from each Business Domain worked with their respective subject matter experts to compile and provide to the Technical Solutions IPT the list of system functions the Department was using for system certification. This resulted in a single, consistent, standard Domain-developed list of system functions to use for the BEA, system certification, and system inventory.

The relationship between Operational Activities and business processes from the OV-5 and OV-6c, respectively, and Systems Functions from the SV-4 is "many-to-many;" that is, one activity may be supported by multiple system functions, and one system function may support multiple activities.

C.11.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.12 SV-8, Systems Evolution Description

This subsection provides a description of the Systems Evolution Description (SV-8) product.

C.12.1 Purpose of Product

The SV-8 shows the evolution of “As Is” to “To Be” systems, including scheduled system replacement, migration and sunset dates.

C.12.2 Description

The SV-8 provides an inventory of DoD systems that reflect the “As Is” state, and maps the to the BEA. It details systems currently in use by DoD departments and agencies and aligns them with the “To Be” business capabilities. The SSV-8 displays exiting plans for the future of each system, along with functional information to allow systems providing similar functionality, to be considered for transition planning. The SV-8 shows the evolution of systems over time, including known dates identifying when systems will sunset, migrate to other systems, or absorb other systems’ functionality. These associated dates include Migration Start Date, Migration End Date, and Life Cycle Phase Start and End Dates, which capture system retirement dates as well.

> **NOTE:** The SV-8 was delivered as part of the *Enterprise Transition Plan, Version 2.3, December 20, 2004*. The next delivery dates for the SV-8 are August 2005 and January 2006.

C.12.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.13 SV-9, Systems Technology Forecast

The BEA SV-9 contains forecast information about technologies that affect BEA systems.

C.13.1 Purpose of Product

The SV-9 provides detailed descriptions of emerging technologies. The BEA SV-9 is intended for use by BEA system developers as a means of looking into the future of information technology for the purpose of guiding systems evolution and new systems development.

C.13.2 Description

Provides a forward-looking perspective on the technologies that could be used to implement future BEA systems. The BEA SV-9 is presented in a matrix format. These forecasts deliver fundamental assessments of various technology areas and should be referred to when considering the forward evolution of BEA systems designs.

C.13.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

C.14 TV-1, Technical Standards Profile

The Technical Standards Profile (TV-1) lists the standards that are mandated for the management, development, and acquisition of new and improved BEA compliant systems.

C.14.1 Purpose of Product

The purpose of a TV-1 is to record the standards used to implement an information processing system. The Business Enterprise Architecture (BEA) is not a system however, but a high-level architecture of operational activities, system components, and technical standards from which a BEA compliant information system may be constructed. Therefore, the purpose of the BEA TV-1 is to describe the mandated IT standards that a BEA compliant system must implement as needed to provide interoperability and net-centric services across the Department of Defense enterprise. Currently all TV-1 Standards in the BEA are mandated standards in the DoD Information Technology Registry (DISR).

C.14.2 Description

The TV-1 takes a holistic view of the standards used to implement an information processing system.

C.14.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

DoD IT Standards Registry, Baseline Release 04-2.0

C.15 TV-2, Technical Standards Forecast

The Technology Standards Forecast (TV-2) contains forecast information about the availability of emerging standards over time.

C.15.1 Purpose of Product

The TV-2 provides candidate standards to help program managers determine what is likely to change within three years, and to suggest an area where upgradability should be a concern.

C.15.2 Description

The forecast information in the TV-2 is used to assess the potential impacts changing standards might have upon the current architecture, and thus how they may influence transition development. The BEA TV-2 focuses on technology areas that are related to BEA and helps to identify issues that may affect the architecture. For emerging standards that are from the DISR no independent analysis for timed forecasts is appropriate. The emerging status in DISR implies the forecast that the standard is expected to be mandated for use in the DoD within three years. A reference to the DISR is provided for such TV-2 standards in lieu of independent standard analysis and forecast.

C.15.3 Standards Applied

DoDAF Version 1.0, 9 February 2004

DoD IT Standards Registry, Baseline Release 04-2.0

C.16 Requirements Baseline

The Requirements Baseline is a database containing BEA requirements statements associated with architecture objects, business processes, and business rules.

C.16.1 Purpose of Product

The identification and mapping of external and internal compliance requirements to business processes serves a number of purposes, including:

- To identify “constraints” on the process
- To highlight potential areas where policy changes may be required
- To drive the development of business rules for each process

C.16.2 Description

The BEA Requirements Baseline is the product of a series of Domain-led AIT workshops. The workshops were established to:

- Identify and validate compliance requirement source documents
- Capture and validate compliance requirements and requirement statements from those sources
- Allocate and map validated requirements to EBPM objects

Prior to the workshops, each Domain identified official source documents or portions of official source documents they deemed applicable for review. During the workshops, all Domains participated in the requirements review to determine whether the requirements were relevant to

the EBPM. Requirements considered relevant to the EBPM were marked as relevant, typed, categorized, and mapped to the appropriate objects in the EBPM.

As the EBPM evolves or as new or updated source documents are identified, BMMP and the appropriate SMEs will work together to review and update the Requirements Baseline as necessary.

C.16.3 Standards Applied

See *BEA Requirements Management Methodology*, 29 November 2004

Appendix D – Summary of Changes Made in *BEA March 31, 2005 Update*

This appendix contains a summary of architectural changes included in *BEA March 31, 2005 Update*. It presents identified and repaired defects, and corrections and gaps in the EBPM OV-6c and other products, based on approved review comments for *BEA March 31, 2005 Update* and continued BEA development.

While this section contains a summary of what has changed, readers wanting to audit or otherwise verify architectural content for the BEA can access complete Change Request (CR) details from the BMMP system of record for change management, Merant Tracker. Consistent with the approved BEA Configuration Management (CM) process, complete CR details are a combination of electronic Merant Tracker fields (including an audit trail of all updates to a change request) and the associated hardcopy configuration management files, which comprise the complete package reviewed and approved by the BEA CCB. Appropriate access to this information either directly or via reports may be coordinated through the BMSI Program Office.

D.1 Changes to the Integrated Dictionary (AV-2)

Table D–1, AV-2 Changes, summarizes the changes made to the AV-2 in the *BEA March 31, 2005 Update*.

Table D–1, AV-2 Changes

Change	Description
Changes to objects and definitions	Changes to the AV-2 are performed automatically by Popkin SA as changes are made to definitions, objects and relationships in the other products.
Added "CBM Functions"	A list of "CBM Functions" compiled from the DITPR by the SCWG was incorporated in the BEA. They were mapped to the SV-4 System Functions. CR 4046

D.2 Changes to the High-Level Operational Concept Graphic (OV-1)

Table D–2, OV-1 Changes, summarizes the changes made to the OV-1 in *BEA March 31, 2005 Update*.

Table D–2, OV-1 Changes

Change	Description
Replaced the OV-1	The OV-1 was updated to more accurately reflect the scope of the BMA of the GIG. CR 3924

D.3 Changes to the Operational Node Connectivity Description (OV-2)

Table D–3, OV-2 Changes, summarizes the changes made to the OV-2 in *BEA March 31, 2005 Update*.

Table D–3, OV-2 Changes

Change	Description
Generate Integrated OV-2 Diagram	Aligned the OV-2 with the updated OV-5 diagrams. Changes address GAO and IV&V comments from BEA Version 2.2. CRs 3785, 4059, 4067
Provide Descriptions of External Activities	Provide missing description information for external operational activities that are referenced by the OV-2 Diagrams. CR 4081

D.4 Changes to the Operational Information Exchange Matrix (OV-3)

Table D–4, OV-3 Changes, summarizes the changes made to the OV-3 in *BEA March 31, 2005 Update*.

Table D–4, OV-3 Changes

Change	Description
Create OV-3	OV-3 was updated to address GAO and IV&V comments from BEA Version 2.2 and to align with changes made to the OV-5 Activity Model. CR 4044 , 4064
Update IA Attributes	Updated the OV-3 IA attributes with most current Domain input for IA requirements on IERs. CR 4045

D.5 Changes to the Operational Activity Model (OV-5)

Table D–5, OV-5 Changes, summarizes the changes made to the OV-5 in the *BEA March 31, 2005 Update*.

Table D–5, OV-5 Changes

Change	Description
Map OV-5 Operational Activities to Operational Nodes	Updates to OV-5 diagrams and definitions address outstanding issues BEA from the *January 31, 2005 Update* and parallel development work on related BEA products. CR 4043, 4058, 4068, 4083
Added Activity to Node Mapping Capability	Allows mapping of multiple Operational Activities to Operational Nodes is required for development of the OV-2. CR 4032
Include FEO ESOH Activity Model	GFI Environmental Safety and Occupational Health (ESOH) Activity Model added 'For Exhibit Only'. CR 4063
Update Mappings to EBPM Processes	Mappings from Operational Activities were updated to reflect changes in the EBPM. CR 4070
Added Capability to Identify Domain-Sourced Material	Created SA capability to identify Domain-sourced OV-5 diagrams and definitions. CR 4072
Delete 'Manage the Program'	Delete unreferenced activity. CR 4086
Identify Non-Increment 1 Activities	Change the color for non-increment 1 activities to white. CR 4086

D.6 Changes to the Operational Rules Model (OV-6a)

Table D–6, OV-6a Changes, summarizes the changes made to the OV-6a in the *BEA March 31, 2005 Update*.

Table D–6, OV-6a Changes

Change	Description
No Changes	No changes were made to the OV-6a

D.7 Changes to the EBPM (OV-6c)

Table D–7, OV-6c Changes, summarizes the changes made to the OV-6c EBPM in *BEA March 31, 2005 Update*.

Table D–7, OV-6c Changes

Change	Description
Replaced Graphical Rectangles with "Groups"	Changed the "Rectangle" model objects to "Groups." The Popkin SA model object "Rectangle" is not an approved DoDAF or BPMN object. Rectangles have been used to group related model objects. CR 3930
Added External Event "Treasury Certificate Transaction Confirmation"	Articulated the addition of the external event "Treasury Certificate Transaction Confirmation" which appears on the EBPM diagram, but was not explicitly included in a CR from the January 31, 2005. The description of this event is also added. CR 3985
Corrected Acronyms and Spelling	Corrected errors that were a result of a global "find and replace" of acronyms, which resulted in some unintended changes as acronym strings within words. Additional spelling errors have been identified and correct by the AIT. CR 4013
Added Process "Manage Delinquent Debt"	Added the "Manage Delinquent Debt" process, four related events, and associated sequence flows. For the "people-pay" activities of travel/payroll entitlements, the EBPM did not accurately reflect the mandated referral of delinquent debts from this entitlement activity to a centralized delinquent debt function within the financial management area. Pertinent requirement mappings were performed. CR 4035
Resolved IV&V Comments	Revised one model object title and one model object description in accordance with IV&V EBPM (OV-6c) comments on BEA v2.3. CR 4038
Core Business Mission Thread Diagrams	Added Core Business Mission Thread Diagrams to the SA encyclopedia. These diagrams are for exhibit only and are not linked to the EBPM, to each other, or to any other BEA products. CR 4056
Deletion of "(DRAFT)" Diagram	Deleted the word "(DRAFT)" from Diagram Description and Viewpoint Fields CR 4074
Identify Enterprise Level Content	Distinguish enterprise-level objects in the EBPM from those in Domain process models provided as GFI.
Miscellaneous	Corrected a variety of minor errors including, but not limited to: spelling errors, adding/revising model object descriptions, revising model objects titles, added data objects. CRs 4037, 4066

D.8 Changes to the Logical Data Model (OV-7)

Table D–8, OV-7 Changes, summarizes the changes made to the OV-7 in *BEA March 31, 2005 Update.*

Table D–8, OV-7 Changes

Change	Description
Created a new OV-7 Conceptual View entitled "BMA Conceptual View"	Created an OV-7 Conceptual View data model that provides an integrated, high-level summary of the OV-7 data. To accomplish this goal: 1 Identified and defined a high-level conceptual top level view that can be shared with a non-technical audience using Entity Relationship Diagramming Techniques. 2 Ensured that the high-level components are consistent with the OV-5 Activity Model ICOMs. 3 Refined the top level components to an appropriate level such that the data concepts represented by the logical view can be understood by general audiences. 4 Ensured that the lowest level Conceptual View can be used as the basis for additional refinement of the BEA Logical View. CRs 3910, 3831
Updated OV-6c Data Objects with Data Elements excluded from CR 3599.	During the implementation of CR 3599 in the previous version, 486 mappings of data elements via business data synonyms to EBPM data objects had to be excluded in order to obtain Domain approval of the remaining mappings. CR 3931 incorporates these previously excluded mappings It also provides the definitions for the data elements and business data synonyms involved in these mappings. CR 3931
Updated HRM Views	1. The PERSON-HEALTH-DATA and PERSON-HEALTH-HISTORY entities were restructured to resolve duplication between the two entities. The PERSON-HEALTH-DATA entity was originally brought into the BEA during the integration of FAM-D data model from Military Health Systems in BEA 2.2. Upon further review of the PERSON-HEALTH-DATA entity, it was determined that the attributes in the PERSON-HEALTH-DATA entity could reside in the existing BEA PERSON and PERSON-HEALTH-HISTORY entities. As a result, this change resolved the overlapping entities issue. 2. The existing HRM - Benefit and Healthcare view was an initial attempt to create a subject area that records healthcare and various other employee benefits. This view was a working view that was implemented in BEA Release 1.0, but it was never completed. When the FAM-D external data model from Military Health Systems was integrated into BEA, benefit and healthcare concepts were captured and added to the OV-7 data model. As a result the HRM-Benefit and Healthcare view became redundant and obsolete and therefore needed to be deleted from the BEA. CRs 3643, 3645, 3647, 3967, 3968.
Miscellaneous	Remaining changes were made in response to GAO comments, eBART verification reports or other observations on the architecture. CRs 3831, 3910, 3983, 4018, 4029, 4034, 4040, 4041, 4047, 3912, 4079

D.9 Changes to the Systems Interface Description (SV-1)

Table D–9, SV-1 Changes, summarizes the changes made to the SV-1 in *BEA March 31, 2005 Update*.

Table D–9, SV-1 Changes

Change	Description
Update SV-1	SV-1 diagrams and definitions were updated to reflect changes to the SV-4 and OV-2 since BEA Version 2.2. CRs 3781, 4085

D.10 Changes to the Systems Functionality Description (SV-4)

Table D–10, SV-4 Changes, summarizes the changes made to the SV-4 in *BEA March 31, 2005 Update*.

Table D–10, SV-4 Changes

Change	Description
Map SCWG Functions to BEA Systems Functions	The capabilities / functions compiled by the SCWG from the DITPR and other sources were added to the BEA and mapped to the BEA System Functions. CR 4046
Validate Diagrams	SV-4s that were created during the v2.2 deliverable were updated to align with changes made to the OV-5 Activity Diagram. CR 3792
Miscellaneous	Provide diagram descriptions, cleanup, integrate, and map system functions to CBM System Functions. CRs 4049, 4060, 4069, 4078, 4080, 4084, 4087

D.11 Changes to the Operational Activity to Systems Function Traceability Matrix (SV-5)

Table D–11, SV-5 Changes, summarizes the changes made to the SV-5 in *BEA March 31, 2005 Update*.

Table D–11, SV-5 Changes

Change	Description
Create SV-5	The SV-5 matrix was created to align the operational activities with system functions. CR 3804

D.12 Changes to the Systems Technology Forecast (SV-9)

Table D–12, SV-9 Changes, summarizes the changes made to the SV-9 in *BEA March 31, 2005 Update*.

Table D–12, SV-9 Changes

Change	Description
Aligned with FEA TRM Core Service Areas	Aligned BEA Technology Service Areas to the FEA TRM Core Service Areas and mapped all BEA Technical Services to these Technology Service Areas. CR 3782

D.13 Changes to the Technical Standards Profile (TV-1)

Table D–13, TV-1 Changes, summarizes the changes made to the TV-1 in *BEA March 31, 2005 Update*.

Table D–13, TV-1 Changes

Change	Description
Updated TV-1 to align with DISR Baseline Release 04-2.0	Mandated BEA standards were aligned to the DISR baseline release 04-2.0; new standards added, retired standards removed and standards updated as needed. CR 3782.

D.14 Changes to the Technical Standards Forecast (TV-2)

Table D–14, TV-2 Changes, summarizes the changes made to the TV-2 in *BEA March 31, 2005 Update*.

Table D–14, TV-2 Changes

Change	Description
Updated TV-2, including alignment with DISR Baseline Release 04-2.0	Emerging BEA standards were aligned to the DISR baseline release 04-2.0 and the Business Information Technology Standards Group recommendations. New standards added, retired standards removed and standards updated as needed. Emerging standards forecasts updated as appropriate. CR 3782.

D.15 Changes to the Requirements Baseline

Table D–15, Requirements Baseline Changes, summarizes the changes made to the Requirements Baseline in *BEA March 31, 2005 Update*.

Table D–15, Requirements Baseline Changes

Change	Description
Added/Modified Requirements and Mappings to EBPM	Added/modified/deleted requirements and mappings from the requirements baseline to EBPM processes. CRs 4048, 4050, 3978, 3979
Reparsed Requirements	Re-parsed requirements in requirements repository. CRs 3920, 3934, 4057

D.16 Other Changes

Table D–16, Other Changes, summarizes changes made to the *BEA March 31, 2005 Update*, but not within the scope of a single product.

Table D–16, Other Changes

Change	Description
Material Weakness Mapping	Material Weaknesses were linked to EBPM processes. Numeric identifiers for material weaknesses were replaced with short titles. CRs 3778, 4089

Appendix E – National Defense Authorization Act (NDAA) for FY 2005

This appendix contains Title 10 USC Sec. 2222, Defense Business Systems: Architecture, Accountability, and Modernization, of Public Law 108-375, the *Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005*. The following excerpt from this law mandates the responsibilities of the DBSMC and IRBs, the content of the BEA and ETP, and provides supporting definitions.

"Sec. 2222. Defense business systems: architecture, accountability, and modernization

"(a) Conditions for Obligation of Funds for Defense Business System Modernization.-- Effective <<NOTE: Effective date.>> October 1, 2005, funds appropriated to the Department of Defense may not be obligated for a defense business system modernization that will have a total cost in excess of $1,000,000 unless--

"(1) the approval authority designated for the defense business system certifies to the Defense Business Systems Management Committee established by section 186[22] of this title that the defense business system modernization--

"(A) is in compliance with the enterprise architecture developed under subsection (c);

"(B) is necessary to achieve a critical national security capability or address a critical requirement in an area such as safety or security; or

"(C) is necessary to prevent a significant adverse effect on a project that is needed to achieve an essential capability, taking into consideration the alternative solutions for preventing such adverse effect; and

"(2) the certification by the approval authority is approved by the Defense Business Systems Management Committee.

"(b) Obligation of Funds in Violation of Requirements.—The obligation of Department of Defense funds for a business system modernization in excess of the amount specified in subsection (a) that has not been certified and approved in accordance with such subsection is a violation of section 1341(a)(1)(A) of title 31.

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[22] *"(c) Duties.--(1) In addition to any other matters assigned to the Committee by the Secretary of Defense, the Committee shall--*

"(A) recommend to the Secretary of Defense policies and procedures necessary to effectively integrate the requirements of section 2222 of this title into all business activities and any transformation, reform, reorganization, or process improvement initiatives undertaken within the Department of Defense;

"(B) review and approve any major update of the defense business enterprise architecture developed under subsection (b) of section 2222 of this title, including evolving the architecture, and of defense business systems modernization plans; and

"(C) manage cross-domain integration consistent with such enterprise architecture." – Title 10 USC, Section 186

"(c) Enterprise Architecture for Defense Business Systems.—Not later than <<NOTE: Deadline.>> September 30, 2005, the Secretary of Defense, acting through the Defense Business Systems Management Committee, shall develop--

"(1) an enterprise architecture to cover all defense business systems, and the functions and activities supported by defense business systems, which shall be sufficiently defined to effectively guide, constrain, and permit implementation of interoperable defense business system solutions and consistent with the policies and procedures established by the Director of the Office of Management and Budget, and

"(2) a transition plan for implementing the enterprise architecture for defense business systems.

"(d) Composition of Enterprise Architecture.--The defense business enterprise architecture developed under subsection (c)(1) shall include the following:

"(1) An information infrastructure that, at a minimum, would enable the Department of Defense to--

"(A) comply with all Federal accounting, financial management, and reporting requirements;

"(B) routinely produce timely, accurate, and reliable financial information for management purposes;

"(C) integrate budget, accounting, and program information and systems; and

"(D) provide for the systematic measurement of performance, including the ability to produce timely, relevant, and reliable cost information.

"(2) Policies, procedures, data standards, and system interface requirements that are to apply uniformly throughout the Department of Defense.

"(e) Composition of Transition Plan.--(1) The transition plan developed under subsection (c)(2) shall include the following:

"(A) The acquisition strategy for new systems that are expected to be needed to complete the defense business enterprise architecture.

"(B) A listing of the defense business systems as of December 2, 2002 (known as `legacy systems'), that will not be part of the objective defense business enterprise architecture, together with the schedule for terminating those legacy systems that provides for reducing the use of those legacy systems in phases.

"(C) A listing of the legacy systems (referred to in subparagraph (B)) that will be a part of the objective defense business system, together with a strategy for making the modifications to those systems that will be needed to ensure that such systems comply with the defense business enterprise architecture.

"(2) Each of the strategies under paragraph (1) shall include specific time-phased milestones, performance metrics, and a statement of the financial and nonfinancial resource needs.

"(f) Approval Authorities and Accountability for Defense Business Systems.--The Secretary of Defense shall delegate responsibility for review, approval, and oversight of the planning, design, acquisition, deployment, operation, maintenance, and modernization of defense business systems as follows:

"(1) The Under Secretary of Defense for Acquisition, Technology and Logistics shall be responsible and accountable for any defense business system the primary purpose of which is to support acquisition activities, logistics activities, or installations and environment activities of the Department of Defense.

"(2) The Under Secretary of Defense (Comptroller) shall be responsible and accountable for any defense business system the primary purpose of which is to support financial management activities or strategic planning and budgeting activities of the Department of Defense.

"(3) The Under Secretary of Defense for Personnel and Readiness shall be responsible and accountable for any defense business system the primary purpose of which is to support human resource management activities of the Department of Defense.

"(4) The Assistant Secretary of Defense for Networks and Information Integration and the Chief Information Officer of the Department of Defense shall be responsible and accountable for any defense business system the primary purpose of which is to support information technology infrastructure or information assurance activities of the Department of Defense.

"(5) The Deputy Secretary of Defense or an Under Secretary of Defense, as designated by the Secretary of Defense, shall be responsible for any defense business system the primary purpose of which is to support any activity of the Department of Defense not covered by paragraphs (1) through (4).

"(g) Defense Business System Investment Review.--(1) The Secretary of Defense shall require each approval authority designated under subsection (f) to establish, not later than March 15, 2005, an investment review process, consistent with section 11312 of title 40, to review the planning, design, acquisition, development, deployment, operation, maintenance, modernization, and project cost benefits and risks of all defense business systems for which the approval authority is responsible. The investment review process so established shall specifically address the responsibilities of approval authorities under subsection (a).

"(2) The review of defense business systems under the investment review process shall include the following:

"(A) Review and approval by an investment review board of each defense business system as an investment before the obligation of funds on the system.

"(B) Periodic review, but not less than annually, of every defense business system investment.

"(C) Representation on each investment review board by appropriate officials from among the armed forces, combatant commands, the Joint Chiefs of Staff, and Defense Agencies.

"(D) Use of threshold criteria to ensure an appropriate level of review within the Department of Defense of, and accountability for, defense business system investments depending on scope, complexity, and cost.

"(E) Use of procedures for making certifications in accordance with the requirements of subsection (a).

"(F) Use of procedures for ensuring consistency with the guidance issued by the Secretary of Defense and the Defense Business Systems Management Committee, as required by section 186(c) of this title, and incorporation of common decision criteria, including standards, requirements, and priorities that result in the integration of defense business systems.

"(h) Budget Information.--In the materials that the Secretary submits to Congress in support of the budget submitted to Congress under section 1105 of title 31 for fiscal year 2006 and fiscal years thereafter, the Secretary of Defense shall include the following information:

"(1) Identification of each defense business system for which funding is proposed in that budget.

"(2) Identification of all funds, by appropriation, proposed in that budget for each such system, including--

"(A) funds for current services (to operate and maintain the system); and

"(B) funds for business systems modernization, identified for each specific appropriation.

"(3) For each such system, identification of the official to whom authority for such system is delegated under subsection (f).

"(4) For each such system, a description of each certification made under subsection (d) with regard to such system.

"(i) Congressional Reports.--Not later than March 15 of each year from 2005 through 2009, the Secretary of Defense shall submit to the congressional defense committees a report on Department of Defense compliance with the requirements of this section. The first report shall define plans and commitments for meeting the requirements of subsection (a), including specific milestones and performance measures. Subsequent reports shall--

"(1) describe actions taken and planned for meeting the requirements of subsection (a), including--

"(A) specific milestones and actual performance against specified performance measures, and any revision of such milestones and performance measures; and

"(B) specific actions on the defense business system modernizations submitted for certification under such subsection;

"(2) identify the number of defense business system modernizations so certified;

"(3) identify any defense business system modernization with an obligation in excess of $1,000,000 during the preceding fiscal year that was not certified under subsection (a), and the reasons for the waiver; and

"(4) discuss specific improvements in business operations and cost savings resulting from successful defense business systems modernization efforts.

"(j) Definitions.--In this section:

"(1) The term `approval authority', with respect to a defense business system, means the Department of Defense official responsible for the defense business system, as designated by subsection (f).

"(2) The term `defense business system' means an information system, other than a national security system, operated by, for, or on behalf of the Department of Defense, including financial systems, mixed systems, financial data feeder systems, and information technology and information assurance infrastructure, used to support business activities, such as acquisition, financial management, logistics, strategic planning and budgeting, installations and environment, and human resource management.

"(3) The term `defense business system modernization' means--

"(A) the acquisition or development of a new defense business system; or

"(B) any significant modification or enhancement of an existing defense business system (other than necessary to maintain current services).

"(4) The term `enterprise architecture' has the meaning given that term in section 3601(4) of title 44[23].

[23] *(4) "'enterprise architecture'—*

(A) means—

(i) a strategic information asset base, which defines the mission;

(ii) the information necessary to perform the mission;

(iii) the technologies necessary to perform the mission; and

(iv) the transitional processes for implementing new technologies in response to changing mission needs; and

(B) includes—

(i) a baseline architecture;

(ii) a target architecture; and

(iii) a sequencing plan;" – Title 44 USC Section 3601

“(5) The terms `information system' and `information technology' have the meanings given those terms in section 11101 of title 40.

“(6) The term `national security system' has the meaning given that term in section 2315 of this title.”.